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In This Issue

GENERAL ARTICLES

- Response of Previously Vaccinated Animals to Exposure in the Third Gestation Period with a Virulent Strain of *Brucella Abortus*—*B. A. Beach, M. R. Irwin, and D. T. Berman*..... 355
- History and Development of Livestock Loss Prevention—*W. A. Young*.... 361
- On Veterinary Ethics—*J. R. Wadsworth*..... 364
- The Mexican Outbreak of Foot-and-Mouth Disease. IV. 365
- Historical Sketches and Memoirs. III. The General Practitioner—*L. A. Merillat* 367

SURGERY AND OBSTETRICS

- Twin Bull Calves—One an Anomaly—*R. R. Graves*..... 370
- A Discussion of New Developments in Glaucoma—*Mason Weadon*..... 375
- Two-Headed Chicken Embryo—*H. E. Calkins and J. LaVere Davidson*.... 376

CLINICAL DATA

- Cattle Scabies in the Northeastern States—*D. W. Baker*..... 378
- Newcastle Disease [Pneumoencephalitis] in a Group of Young Chicks—*D. W. Bruner, P. R. Edwards, and E. R. Doll*..... 382
- "Water Bloom" as a Cause of Poisoning in Livestock in North Dakota—*T. O. Brandenburg and Fred M. Shigley*..... 384
- The Screw-Worm Fly, *Cochliomyia Americana*, in Ohio—*F. R. Koutz*.... 385
- A Survey of Some Scandinavian Toxicologic Observations—*J. Egehoj*.... 386

NUTRITION

- The Prophylactic Administration of Vitamins to Dairy Calves—*L. O. Gilmore, L. M. Jones, L. A. Kanegis, and M. H. Roepke*..... 390

EDITORIAL

- Cincinnati in Veterinary History..... 394.

- | | |
|--|-------------------------------------|
| <i>Surgery and Obstetrics</i> 370 | <i>Editorial</i> 394 |
| <i>Clinical Data</i> 377 | <i>Current Literature</i> 397 |
| <i>Nutrition</i> 390 | <i>The News</i> 400 |
| <i>Veterinary Military Service</i> 414 | |

(Contents continued on pages ii and iv)

Volume CX

JUNE 1947

Number 843




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CONTENTS

(Continued from Cover)

SURGERY AND OBSTETRICS

Marrow Biopsy	374
---------------------	-----

CLINICAL DATA

Clinical Notes	377
Phenothiazine in Blackhead.....	377
Incubator Disinfectants	377
ANTU	377
Vitamin Supplements Discredited.....	377
Do Cows Like to Be Milked?.....	381
Formula 144	381
Hemorrhagic Septicemia Serum in Calf Scours.....	383
Bacitracin	383
Coagulant Action of Penicillin.....	385
Is Penicillin Expensive?.....	389

NUTRITION

Hybrid vs. Open-Pollinated Corn.....	393
Riboflavin alias Lactoflavin, Lactochrome, Vitamin G, Vitamin B ₂	393
Thyroid Function in Poultry Nutrition.....	393
Prevention of Calf Scours.....	393

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CONTENTS—Continued

EDITORIAL

The Student Exchange Program in Veterinary Medicine.....	396
--	-----

CURRENT LITERATURE

ABSTRACTS

Contagious Agalactia in Sheep and Goats.....	397
Artificial Insemination in Cattle.....	397
Plasma Cell Myeloma in a Dog.....	397
Metal Fragments in Horses Located with X-Ray.....	397
BCG Vaccine Improved	398
Deficiency Diseases of Swine.....	398
Dairying in Quebec.....	398
Obstetrics in Swine.....	398

BOOKS AND REPORTS

Fleas	398
North Dakota Livestock Sanitary Board.....	398
"Hutyra and Marek"	399
Veterinary Bacteriology	399

THE NEWS

AVMA Eighty-Fourth Annual Session.....	400
Additional Schedule of State Association Broadcasts.....	400
Proposed Amendments to Constitution and Administrative By-Laws.....	401
Cash Prize Added to Humane Act Award.....	403
AVMA Exhibit at Centennial Session of the American Medical Association.....	403
The Next International Veterinary Congress, 1949?.....	403
Applications	404
U. S. Government.....	406
Canadian Government	406
Among the States and Provinces.....	406
Foreign	412
Coming Meetings	412
State Board Examinations.....	413
Veterinary Military Service.....	414
Deaths	414

MISCELLANEOUS

The Epizootiology of Foot-and-Mouth Disease.....	366
The AMA Centennial Anniversary, 1847—1947.....	369
Index to Volume CX.....	Index 1-10
An' Related Topics.....	xxiv

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Response of Previously Vaccinated Animals to Exposure in the Third Gestation Period with a Virulent Strain of *Brucella Abortus*

B. A. BEACH, D.V.M., M. R. IRWIN, Ph.D., and D. T. BERMAN, B.A., D.V.M., M.S.

Madison, Wisconsin

IT HAS BEEN well established that considerable protection against bovine brucellosis is engendered in cattle for the first gestation period following their vaccination as calves with strain 19 of *Brucella abortus*. All reports¹⁻⁶ of the results of tests of this acquired immunity, whether dealing with animals under controlled conditions or in the field, are in general agreement that vaccination with strain 19 definitely enhances the resistance of the animals. However, what proportion of the vaccinated animals is protected against a virulent strain of *Br. abortus* by calfhood vaccination with strain 19 is a question which has been answered somewhat differently by workers in different laboratories.^{2, 5, 6} As will be discussed elsewhere, some differing results are to be expected on the basis of chance alone, even in different trials in the same laboratory, unless it is conceded that all animals have the same response to (a) the vaccination and (b) the infecting organism.

Assuming, as has indeed been found to be true, that the majority of animals vac-

cinated as calves will be protected from the causative agent of brucellosis in their first gestation period, one obvious question is that of the duration of this resistance. If the proportion of vaccinated animals which are resistant (i.e., produce living calves at full term) during the first gestation period ranges between 70 and 90 per cent,¹⁻⁶ what proportion will be resistant during later pregnancies? In an attempt to provide a partial answer to this important question, cows which had been vaccinated as calves with strain 19 were exposed during the third gestation period to a virulent culture of *Br. abortus*. Their reactions to this exposure, and those of 6 cows which had been vaccinated as young adults, form the basis of this paper.

MATERIALS AND METHODS

In September, 1940, 15 heifers varying in age from a minimum of 18 months were vaccinated subcutaneously with 5 cc. of a fresh culture of *Br. abortus*, strain 19. These animals (the "young adults") were offspring of the cows which in previous experiments^{7, 8} had made up herd 3. All but 2 of these animals had been bred either a few days or several weeks prior to vaccination. Also, during the summer of 1941, 33 calves obtained from various sources were added to the group of young adults. Most of these calves were between 6 and 8 months of age in September, 1941, when 31 of them were vaccinated with 5 cc. of strain 19, *Br. abortus*. Two calves (1Z and 4Z) were not vaccinated and were allowed to mingle with the vaccinated animals. The 15 young adults and the 33 calves were thereafter treated as a unit and make up herd 4.

Prior to vaccination, the serum of each animal was found to be nonreactive to *Br. abortus*.

From the Department of Veterinary Science and the Department of Genetics (No. 366), Wisconsin Agricultural Experiment Station; investigation carried out in cooperation with the BAI, USDA.

Technical assistance in various phases of this project has been given by Mrs. Mildred M. Johnson. It was possible to carry on this project during the war years largely because of the whole-hearted loyalty of the herdsmen, O. A. Jacobson and Floyd Blakley.

Professor, Department of Veterinary Science (Beach); professor, Department of Genetics (Irwin); and instructor, Department of Veterinary Science (Berman); College of Agriculture, University of Wisconsin, Madison.

Following vaccination, the serums of these animals were tested monthly for agglutinin titer, usually by the plate method, but occasionally by both the plate and tube methods.

This herd was kept together until late in 1945. Only 23 of the 31 animals vaccinated as calves in 1941, and 6 of those vaccinated as young adults in 1940, were pregnant at the time of exposure on Jan. 20, 1945. Several animals had been disposed of prior to the exposure on account of lack of space in the barn, failure to breed, or other causes. Before the exposure, there was never a suspicion of infection with *Br. abortus* other than that connected with the vaccination. All cows vaccinated as calves were in their third gestation period when exposed to the virulent culture; a few of those vaccinated as young adults were in their fourth period.

At each calving or abortion, prior to the exposure to the virulent culture, careful examination by the usual methods of guinea-pig inoculations and culture was made for the presence of *Br. abortus*. Before the exposure, no evidence of the presence of the organism was noted.

As is shown in table 1, these 29 animals, most of which had been pregnant four and a half to six months, and 10 nonvaccinated controls were exposed to a virulent culture of *Br. abortus* on Jan. 20, 1945. They had previously been examined for pregnancy (by B. A. B. and D. T. B.). The culture (BAI No. 2308) was kindly supplied by Drs. A. B. Crawford and C. K. Mingle of the U. S. BAI. According to plate counts, each animal was given about 30 to 33 million organisms *via* the conjunctival sac. The virulence of the organism is shown by the reactions of the controls, i.e., all aborted.

During the early stages of the infection, the serums of all animals were tested weekly, later monthly, for agglutinin titer. At each calving or abortion, portions of the placenta, samples of colostrum from each quarter, and, if the calf were dead, fetal liver and spleen, contents of the fetal stomach, and fetal heart blood were cultured on tryptose-agar plates, as described by Huddleson.⁹ Portions of these materials were kept in a refrigerator at 4 to 5 C. for inoculation into guinea pigs if the cultures were negative for *Brucella*.

Shortly after the exposure, attempts were made to isolate the organism from the blood of each animal. One method was a modification of that described by Haring and Traum,¹⁰ which consisted of collecting about 15 cc. of blood from the jugular vein in a sterile tube containing 3 cc. of a 20 per cent solution of sodium citrate. The blood was heated at 56 C. for ten minutes to inactivate the complement, and then centrifuged at 3,000 r.p.m. for twenty-five minutes in an angle centrifuge. The sediment was pipetted over the surface of six large, crystal violet, tryptose-agar slants and incubated for four days. *Brucella*-like colonies were tested against immune serum. In the second method, heparin was used as the anticoagulant instead of sodium citrate. The blood was not heated but otherwise was handled exactly as in the first method. Heparin was used

since it had been found¹¹ that citrate enhanced the bactericidal action of serum.

Hemocultures were made by the second method on all the animals weekly for six weeks, and then those animals from whose blood the organism had been isolated at least twice were selected for examination weekly, using both methods.

EXPERIMENTAL RESULTS

Agglutinin Titers Following Vaccination.—The highest agglutination titers observed for the serums of the 29 individuals following vaccination as calves (all animals with the suffix "Z" except 1Z and 4Z) or young adults (1F, 8G, 11G, 25G, 33G, and 63G) are given in table 1. Also given in the table is the time required after vaccination until the disappearance of the agglutinins. It will be noted that the titers of all the animals reached the highest point within a two-month period following the vaccination, most of them within one month. The titers of most animals vaccinated as calves had disappeared within a six-month period, although there were some which remained for a year or longer. Peculiarly, the calf (2Z) with the lowest titer (P at 1:50) was among those with the greatest persistence, this partial reaction lasting for seventeen months. This variation in the persistence of the titer in a small proportion of animals vaccinated as calves is a common experience. The titers of those vaccinated as young adults were somewhat more variable in their persistence; these will be discussed later along with the reactions of the serums of the additional 9 animals in this category.

Reaction to the Exposure.—It will be noted in table 1 that the virulence and dosage of the infecting organism were such as to cause each of the 10 control animals to abort, with recovery of the organism in each case. (Although no fetus was observed from 4Z, a vaginal discharge was noted only a few weeks after the exposure. *Br. abortus* was recovered at a later date, making reasonable the assumption of an early abortion.) The dosage (30 to 33 million organisms) might have been too severe; however, these animals were exposed to a much lighter dose than was given in a former trial to normal animals of herd 2,⁸ in which there were at least 5 (excluding 23A) cows which carried their calves to full term and 11 which aborted. The dosage used for herd 2 was well over a billion living organisms, as determined by

plate counts. All animals of the previous and present tests were exposed by way of the eye. Hence, there was either a difference in the virulence of the cultures administered, or the controls of herd 4 used in the test reported in this paper were innately more susceptible to the organism, or both variable factors were involved. However, there was one difference between the two groups, in that herd 2 was exposed when most of the cows had been pregnant between two and three months, while those of herd 4 were pregnant four and a half to six months.

In table 1, it will also be noted that of the 23 animals vaccinated as calves, only 9 (3Z, 9Z, 11Z, 12Z, 20Z, 24Z, 28Z, 29Z, and 35Z) produced living calves at full term, and 2 (2Z and 6Z) whose calves were born living, but weak, shortly before and after eight months' gestation, respectively. The other 12 cows aborted their fetuses from fifty-eight to 112 days after exposure. It is a question, of course, in which main category—resistant or susceptible—the 2 cows whose calves were living but weak should be placed. In these two instances, it was possible to raise both calves, largely

TABLE 1—Agglutinin Titers of the Serum of Animals Vaccinated with *Brucella Abortus* Strain 19 as Calves or as Young Adults, and the Reactions of These Animals upon Exposure During Their Third or Fourth Gestation to a Virulent Culture of *Br. Abortus*

Cow no.	Postvaccination period					Postexposure period				
	Reactions of serum			Time from service to exposure	Time from exposure to parturition	Duration pregnancy	Calf L or D ¹	Brucella recovered at parturition	Reactions of serum	
	Highest titer and time first observed	Disappearance of reaction	Highest titer and time first observed							
	Titer	Month	Months	Days	Days	Days			Titer	Month
2Z	P-1:50	1	17	147	88	237	L-W	Yes	1:200	2
3Z	P-1:100	1	2	90	195	285	L	Yes	1:200	1
6Z	P-1:100	1	3	160	84	244	L-W	Yes	1:200	4
7Z	P-1:100	1	4	129	81	210	D	Yes	1:200	3
8Z	1:400	1	4	134	76	210	D	Yes	1:200	3
9Z	1:400	1	6	130	148	278	L	Yes	1:200	5
11Z	P-1:100	1	3	145	124	269	L	No	P-1:50	1
12Z	P-1:100	1	3	142	137	279	L	No	P-1:25	1
13Z	P-1:100	1	3	143	100	243	D	Yes	1:200	4
14Z	1:400	1	3	97	112	209	D	Yes	1:200	5
17Z	1:400	1	2	152	67	219	D	Yes	1:200	2
18Z	1:400	1	12	162	61	223	D	Yes	1:200	1
20Z	1:400	2	3	128	156	284	L	Yes	1:200	3
22Z	P-1:100	2	3	150	58	208	D	Yes	1:200	4
23Z	P-1:100	2	3	157	71	228	D	Yes	1:200	4
24Z	P-1:100	1	3	160	131	291	L	Yes	P-1:50	1
28Z	1:400	1	7	129	153	282	L	No	P-1:100	1
29Z	1:200	2	6	149	138	287	L	No	P-1:100	6
30Z	P-1:100	1	5	155	79	234	D	Yes	P-1:200	1
31Z	P-1:100	1	3	131	76	207	D	Yes	1:200	1
32Z	P-1:100	1	5	132	72	204	D	Yes	1:200	1
33Z	P-1:100	1	5	155	78	233	D	Yes	1:200	3
35Z	1:400	1	6	139	151	290	L	No	P-1:25	1
1F	1:200	1	14	145	127	272	L	Yes	P-1:100	6
8G	1:400	1	19	"	"	"	L-W	Yes	P-1:50	1
11G	1:400	1	2	149	124	273	L	No	P-1:25	3
25G	1:400	1	"	158	82	240	D	Yes	1:200	1
33G	1:400	1	16	151	131	282	L	Yes	1:100	1
63G	1:400	1	15	101	180	281	L-W	Yes	P-1:100	1
1Z				149	59	208	D	Yes	1:200	1
4Z				103	"	"	"	Yes	1:200	1
5H				147	53	200	D	Yes	1:200	4
6H				126	70	196	D	Yes	1:200	1
8H				143	41	184	D	Yes	1:200	1
12H				134	71	205	D	Yes	1:200	1
21H				128	46	174	D	Yes	1:200	1
30H				117	64	181	D	Yes	1:200	1
41H				142	58	200	D	Yes	1:200	1
63H				143	54	197	D	Yes	1:200	1

Unless otherwise stated, the titers given represent the highest titer of serum at which complete clumping of the organism was noted by the plate method. P-1:50 and P-1:100 indicate only a partial reaction at these serum dilutions. Occasionally, these readings were checked by the tube method.

¹L=living calf; D=dead calf at birth or abortion; L-W=living calf, but weak.

²See, text.

by hand feeding. However, irrespective of the group in which the 2 animals are placed, it is clear that somewhat less than half of the 23 animals received enough protection from the vaccination to carry them through the third gestation period. The expected number to produce normal calves—had these been exposed to a virulent organism in the first gestation period—is a minimum of about 14 of a total of 23, according to the reported results (the expected range of protected animals is probably 70 to 90 per cent). The number actually noted as producing normal calves in the third gestation period is somewhat less than that ordinarily anticipated if the resistance engendered by the vaccination during calthood had persisted without being lessened with the passage of time. Although this difference is statistically significant, it should be emphasized that the number of animals involved is too small to allow final conclusions to be drawn. It is only proposed here to indicate the trend. A definite answer to the problem of the duration of the immunity produced by calthood vaccination must await the accumulation of much more data, involving larger numbers of animals. It would also be desirable for the trials to be made in several laboratories.

Following the exposure of the 6 animals which were vaccinated as young adults, there were 3 (1F, 11G, and 33G) which calved normally, 2 (8G and 63G) which gave birth to living but weak calves, and 1 (25G) which aborted at about eight months (table 1). The calf of 63G was living but weak, although the gestation period was of normal length—281 days. The calf died of scours in less than a week after birth. The only breeding date recorded for 8G, which also produced a living but weak calf, was Aug. 9, 1944. A living but small and weak calf was born July 9, 1945, and, according to our records, the calf was comparable in size to a fetus about 7 to 7½ months in development. It is probable, therefore, that this cow (8G) was bred again at a later but unknown date than that recorded.

Because of the small number of animals which were vaccinated as young adults and later exposed, it is not possible to make any comparison of the duration of whatever resistance was produced in these animals with that of animals vaccinated as calves. Considering that they

were vaccinated a year earlier (1940) than the calves (1941), there is a suggestion—and only a suggestion—of a slightly longer duration of the acquired immunity. The same results, however, often could be obtained with any group of 6 animals vaccinated as calves. That is, assuming the odds are slightly less than 50:50 that an animal vaccinated as a calf would retain sufficient immunity in the third or fourth gestation period to withstand an infection with a virulent organism, the finding of 3 or 4 resistant animals in a group of 6 is to be expected, on the basis of chance alone.

It is of interest to point out that, of the 29 animals exposed after vaccination either as calves or young adults, all but 6 (11Z, 12Z, 28Z, 29Z, 35Z, and 11G) carried the organism at the time of calving or abortion. In contrast, animals which have gone through an infection with a virulent organism and become "ceased" reactors (*i.e.*, demonstrable agglutinins have disappeared from their serums) have carried, only rarely in our experience, the organism at parturition following a re-exposure. Thus, as previously reported,^{7,8} only 2 of 16 ceased reactors carried the organism at the time of parturition, and only 1 of the 16 aborted, although exposed to a heavier dose of the organism than was given the animals in the current experiment. (Attention should again be called to one main difference in the techniques of exposure—the more advanced stage in pregnancy at which the vaccinated animals were exposed in this later test.) The time elapsing between the infection or vaccination and subsequent challenge of the acquired immunity is about the same in each case. Thus, 11 of the ceased reactors were originally infected in 1928, and the next exposure was made in 1933. The young adults of the present experiment were vaccinated in 1940, the calves in 1941; both groups were exposed in January, 1945. These data add to the generally accepted opinion that the immunity acquired by vaccination with strain 19 is not as solid, or as durable, as that acquired from an infection with a virulent organism.

A differential response of agglutinin titer may be noted in table 1 among the animals vaccinated as calves, as previously stated. This differential response, however, was not correlated in any way with the subsequent reaction (either calving or

abortion, or agglutinin titer) to the exposure with the virulent organism. For example, there were 14 individuals with agglutinin titers, following vaccination, no higher than a partial reaction at 1 : 100. Of these, 8 aborted, 4 produced normal calves, and 2 gave birth to living but weak calves. Of the 9 animals whose titers were 1 : 200 or higher, 4 aborted and 5 produced normal calves.

Every abortion among the vaccinated animals, as well as among the controls, was accompanied by a recovery of the organism; the organism was not recovered at calving from 6 of the 12 cows producing calves at full term.

Because each of the controls proved susceptible (*i.e.*, all aborted), it might be suggested that the infecting dose was too severe. It would then follow that these results may not always be expected under natural conditions. Beyond pointing out this possibility, no statement can be made. In the opinion of the authors, however, the dosage was not too severe.

Isolation of Organism from Blood Cultures.—One of us (D. T. B.) attempted to isolate the organism from the circulating blood following exposure, with the possibility in mind that the presence or absence of the organism might be correlated with the response of the animal at calving or abortion. As stated earlier, tests were made weekly for six weeks following exposure with blood from each animal, and then blood was used in further

tests only from those animals from which isolations had been made at least twice.

Successful isolations of the organism were made from the blood of 9 of the 10 controls—not from that of 5H—between the sixth and forty-fifth days after the exposure. It was also found in the blood of 7 animals which aborted (7Z, 8Z, 14Z, 23Z, 30Z, 31Z, and 25G), in that of 4 which calved normally (3Z, 9Z, 35Z, and 33G), and in the blood of the 4 which produced living but weak calves (2Z, 6Z, 8G, and 63G). It is clear that, with the technique used, this test provided no index to the final response of an animal to the infection.

Correlation of Bactericidal Titer and Resistance.—The serum of each of the vaccinated animals, as well as that of the 2 (1Z and 4Z) not vaccinated, was tested at intervals, following the disappearance of the induced agglutinins, for bactericidal activity against a virulent strain of the organism. The details of the technique were the same as are described elsewhere.¹² The serums of all the vaccinates had a higher titer of bactericidins than has been found for the serum of any nonvaccinated or noninfected animal. But neither the highest bactericidal titer reached after the vaccination, nor that maintained at the last test made shortly before exposure, provided a definite index of the reaction of an individual to an infection with a virulent organism. One can only say that the serum of the vaccinates resembled that of animals which have lost their agglutinins

TABLE 2—Results Following Vaccination of Pregnant Heifers with Strain 19 of *Brucella Abortus*

Heifer no.	Da. from breeding to vaccination	Mo. to maximum titer ^a	Mo. to become "ceased reactor"	Gestation period (da.) (first calf)	Isolation of organism	First calf
15E	35	1-1:400	29-1:50 ^a	286	Neg.	Normal
20E	73	1-1:400	31	288	Neg.	Normal
1F	2	1-1:200	15	175	Neg.	Dead
63F	8 ¹	1-1:400	3-1:50 ^a	Not pregnant		
1G	1	1-1:400	3-1:25 ^a	Not pregnant		
2G	8	1-1:400	21-1:25 ^a	278	Neg.	Dead
3G	..	1-1:400	14	Not pregnant		
8G	68	1-1:400	19	282	Neg.	Normal
11G	73	1-1:400	5	283	Neg.	Normal
25G	45	1-1:400	4	248	Neg.	Dead
33G	108	1-1:400	22	276	Neg.	Normal
38G	1	1-1:400	17-1:25 ^a	281	Neg.	Normal
63G	73	1-1:400	8	286	Neg.	Normal
1J	85 ¹	1-1:400	3-1:100 ^a	Not pregnant		

¹Cow 1G was bred 10 days and 38G was bred 36 days after vaccination; cows 63F and 1J were vaccinated after breeding but were not pregnant.

²On the 23rd day after vaccination, the serum was tested by the tube method; a few animals had higher titers than are shown here.

³Each titer represents that shown against *Br. abortus* just before disposal of the animal; for example, the titer of the serum of 1G was 1:25 three months after vaccination.

⁴See, text.

after an actual infection, as has been reported.¹³ Our results do not support the proposal of Huddleson *et al.*^{14, 15} that such a test would determine the resistance of an animal (it is assumed that this term in his paper means those animals which will or will not produce normal calves at about full term) in a population. Perhaps, a modification of the test as now made, or in combination with another, will be found to be more successful in picking out the resistant animals. The details of these tests will be supplied upon request, and may be published elsewhere.

Effect of Vaccination with Strain 19 on Heifers in First Pregnancy.—As was stated earlier, there were 15 animals which were vaccinated as young adults in September, 1940. These varied in age upwards from a minimum of 18 months. The information as to the duration of the agglutinin titer and the effect at the first pregnancy of calfhood vaccination is summarized in table 2. It may be noted that each reached the maximum titer within one month, but there was considerable variation in the time required for the disappearance of this reaction. There were 4 animals whose titers disappeared in less than a year, 6 in less than two years, and 3 in less than three years. One cow (25G) maintained a partial reaction at a dilution of 1 : 100 to the day of exposure, with downward fluctuations from time to time, and 1 (1J) which was not pregnant was sold in three months after vaccination before the antibodies had entirely disappeared.

Four of these heifers were not pregnant; the calves of 3 (1F, 2G, and 25G) were dead when born at 178, 278, and 248 days of gestation, respectively. However, the organism was not isolated, by guinea pig inoculation of the uterine fluid and the colostrum, from cows producing either the dead or living calves. One animal (6G) had a living but weak calf at 267 days of pregnancy, and 7 produced normal calves at full term. The results from these 6 animals are not so important in themselves, largely because of the small numbers involved, but are placed on record so that they could be added to the experiences of others, and thus have some meaning. For example, it cannot be stated that the vaccination was even indirectly the cause of the 3 dead calves from this group of ani-

mals, particularly since the organism was not recovered. However, should these results correspond with the experience elsewhere in vaccinating pregnant heifers, they would not stand as isolated observations.

SUMMARY

The immunity of 23 animals vaccinated as calves, and of 6 vaccinated as young adults, with strain 19 of *Brucella abortus* was challenged in the third gestation period of the first group and in either the third or fourth of the second group. Each of the 10 controls aborted following the exposure. Among those vaccinated as calves, there were 12 cows which aborted, 2 with living, weak calves, and 9 with calves born alive at full term. Among those vaccinated as young adults, there were 2 animals with living but weak calves, 3 with normal calves, and 1 which aborted. These results indicate that, among the animals vaccinated as calves, there was a smaller number of resistant animals than would have been expected had the immunity been challenged during the first gestation period.

There was no reaction following the vaccination which definitely predicted the response of an individual to a subsequent exposure with a virulent organism.

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(Continued on page 361)

History and Development of Livestock Loss Prevention

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THE NEED for livestock loss prevention became evident in the early days of civilization, when man learned to make use of other animals for his own convenience and benefit. Civilization in the world has progressed pretty much in keeping with the degree of efficiency of its animal husbandry. Good animal husbandry includes livestock loss prevention.

The need for livestock loss prevention becomes more important year by year, as we are faced with an ever-decreasing human population and with serious encroachments upon the animal domain from disease.

In the days of wild buffalo herds, conserving of those animals was not important; but the conservation of the buffalo has since become a subject of national, yes, international importance.

Certainly, in these days of high prices, it behooves us to consider seriously the terrific waste of animal products.

Livestock loss prevention is an automatic part of anti-cruelty work. Every dead or crippled animal has endured suffering in some degree, and any reduction in losses

from death or crippling in farm livestock also reduces the suffering of those creatures. Here "kindness is an investment."

Henry Bergh, who established the first society for the prevention of cruelty to animals in the United States, was motivated primarily by the need of livestock loss prevention, because in the 1860's, calves on the way to market were hauled through the streets of New York and other places to the stockyards and packing houses, inhumanely crammed into carts and wagons, causing extensive and severe injuries, and even many deaths.

We owe a vote of gratitude to Henry Bergh for starting the first S.P.C.A. in our country, thus enabling present-day humanitarians to cooperate with the livestock interests through the medium of the National Live Stock Loss Prevention Board to prevent cruelty to animals and make money for livestock men.

HISTORICAL BACKGROUND

During fifteen years of work with the National Live Stock Loss Prevention Board, I have felt that this Board was doing a marvelous piece of work for the livestock industry, and that it was something reasonably new. However, I find that in 1917 a very large number of people in the livestock, packing, stockyard, railroad, and other allied interests were already doing something about livestock loss prevention.

The Western Weighing and Inspection Bureau of Chicago has been active in this work. Their circular No. 293, dated July 10, 1919, entitled "Loading and Handling of Livestock," is just as pertinent today as it was then.

The Chicago and Northwestern Railroad circular No. 50, dated Aug. 10, 1919, entitled "Prevent a Claim a Day," deals with proper loading and handling of livestock, and also contains many practical suggestions of benefit today.

The official proceedings of the St. Louis Railway Club, dated April 11, 1919, contains an article by Dr. W. J. Embree on proper loading and handling of livestock, and The National Live Stock Exchange of Chicago published a report of a conference held March 24 and 25, 1920, to study the reduction of livestock shipping losses. Everett C. Brown presided as chairman, and dozens of livestock producers, shippers, and representatives from cooperative associations, farm-bureau federations, government, meat packers, livestock exchanges, stockyards, railroads, and the press were present.

The National Live Stock Exchange, on May

Managing director, The Anti-Cruelty Society of Chicago, Ill.; and chairman, National Live Stock Loss Prevention Board.

Presented before the Section on Sanitary Science and Food Hygiene, Eighty-third Annual Meeting, American Veterinary Medical Association, Boston, Mass., Aug. 18-22, 1946.

(Continued from page 360)

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5, 1920, reported a second meeting, held at the Saddle and Sirloin Club in Chicago, on the reduction of livestock losses. This group numbered about one hundred and represented practically every phase of livestock producing, shipping, and packing interests. They discussed fifteen subjects: (1) loading station pens and chutes; (2) equipment; (3) bedding of the cars; (4) loading the cars; (5) safe carload minimum; (6) partitioning mixed cars; (7) the 28-hour law; (8) feeding en route; (9) drenching or sprinkling en route; (10) holding stock in cars in terminals; (11) delay between terminal yards and unloading chutes; (12) livestock train schedules; (13) unloading at destination; (14) handling within the yards; (15) loading out the marketed stock.

As I read this report of twenty-six years ago, it seemed to me I was reading the agenda of our next executive meeting of the National Live Stock Loss Prevention Board.

Those 1920 meetings were attended by large delegations from the railroads, and they participated in the discussions. They are still interested and active, but I regret that their interest today is not so keen as in the 1920's.

On Oct. 3, 1922, the *St. Paul Dispatch* reported that the American Humane Association convention had on its program Dr. W. J. Embree, who spoke on the subject of "Live Stock Loss Prevention," and Dr. J. J. Hayes of the Institute of American Meat Packers, speaking on a similar subject.

The Kansas City Southern Transportation Department bulletin for November, 1927, carried a headline "Keep Loss and Damage on the Run." This was a railroaders' meeting covering all sorts of freight losses. However, one of the outstanding features of the program was "Handling Live Stock Safely."

The Western Weighing and Inspection Bureau was active in the study and practical application of knowledge for the prevention of livestock losses, particularly marketing losses. In the early days of visual education, they led the field with slides and other illustrative material to call attention to the terrific losses from injury and disease.

Other groups in the United States were interested in livestock loss prevention. An outstanding one was the Live Stock Loss Prevention Association of Ohio. The activities of this group date back to about 1923, and they are still very active today.

In the late roaring 1920's, Homer Davison of the American Meat Institute and others began thinking and acting on the subject of a national livestock loss prevention board. This board did not materialize immediately, but did come into being in 1934.

The loss prevention activities from the standpoint of disease go back many years. The outstanding example has been the near eradication of tuberculosis. H. R. Smith was one of many active in this work, and in 1934 he was named general manager of the National Live Stock Loss Prevention Board. Harry J. Boyts, Ray L. Cuff, W. A. Peck, and Dr. W. T. Spencer were designated regional managers.

The primary purpose of the National Board at that time was the reduction of waste in the

marketing of livestock. That purpose has continued to the present, and it is our principal interest for the future. We are cognizant of the terrific loss from animal diseases and parasites, particularly grubs. We participate in a modest way in control programs of these diseases and parasites, but believe the primary responsibility for control rests with the government agencies and organizations already active.

The American Humane Association, representing the entire humane forces, was attracted to livestock loss prevention work in the early 1930's. Its president, Sydney H. Coleman, and Robert F. Sellar, then president of the Animal Rescue League of Boston, attended a meeting of the Ohio State Live Stock Loss Prevention Board. I well remember Mr. Sellar's enthusiasm over this first meeting, and it continues today in his office as president of the American Humane Association. This organization has given liberally of its funds to support the program of the National Board. It is now providing financial backing to have a special agent study market conditions and losses throughout many of the principal livestock markets in the United States. That information will be a practical foundation for more effective livestock loss prevention.

The American Veterinary Medical Association has been actively interested in livestock loss prevention for many years, partly through its individual members, partly through its publications, officially by representation on the board of directors, and by financial support of the National Live Stock Loss Prevention Board.

The financial support for the activities of the National Board comes from packing companies, represented by the American Meat Institute, the American Humane Association, and a few of its member anti-cruelty societies, the American Veterinary Medical Association, insurance companies, livestock exchanges, numerous railroads, principally western ones, stockyards companies, and the Tanners' Council of America. However, the interest in the Board's program is widespread, and many other groups, organizations, and individuals participate in and profit from the Board's activities. For example, livestock breeders' associations certainly see benefits coming to their members from any loss prevention program. Four-H Clubs, Future Farmers of America, and similar groups profit in their own way—yes, even the man in the street, who must pay good hard cash for his meats and animal products, thus derives financial benefits directly or indirectly from a livestock loss prevention program.

Through General Manager H. R. Smith's office in the Exchange Building, Union Stock Yards, Chicago, this National Board is able to reach out through its regional directors, who are also livestock sanitary commissioners, and touch the livestock program from the transportation and handling angles, as well as the disease and sanitary angles.

Figures indicate that the amount of meat food lost each year through careless and

improper handling just during the marketing process is sufficient to feed six Army divisions for a whole year. Certainly, here is a source of meat-food and animal products which, with proper handling, would relieve the pangs of hunger, cold, and starvation for many thousands of needy people, if we could effectively apply good handling and transportation principles throughout the marketing processes of livestock.

The Middlewest of the United States has been most active in this program, but there is also a New England Live Stock Loss Prevention Association, organized ten years ago, and a group about to become effectively active to serve the southeastern states, which are becoming increasingly more important in the livestock-producing field. We find a great deal of interest along the Pacific Coast, and soon there may be a livestock loss prevention agent working in that area.

EDUCATIONAL PROGRAM

Practical education is important to livestock loss prevention. It must be repeated year after year, for each new group of truckers, shippers, producers, handlers, etc., must be properly informed and instructed in the efficient, humane, and economical handling of livestock. It would do little or no good for us to put on an intensive campaign for a few years and then stop, expecting the problem was solved for all time. Education is progressive and must of necessity be repeated for each individual concerned.

Thousands of leaflets are distributed each year, and motion picture films are available to show audiences what to do and what not to do in livestock handling and transportation.

Our regional directors are widely and favorably known for their untiring efforts to help the livestock industry make more profit. While all the regional directors use every possible approach to this livestock loss prevention problem, each one seems to have a special slant on the work. Ray Cuff is an enthusiast on grub and insect control; Dr. Spencer likes to emphasize control of swine mange and swine erysipelas; Harry Boyts and Bill Peck talk and work continually on safe loading and handling. During 1946, Al Detjen visited many markets to assemble practical information. General Manager H. R. Smith keeps the information flowing to and from all concerned.

ESSENTIAL ITEMS

Safe Handling.—The animals should be handled without beating and prodding with canes, clubs, pitch forks, chains, ax handles, etc., which produce bruises, causing a direct loss in poundage from the part trimmed out and tanked, as well as reducing the quality value of the entire cut of meat. Nearly 10 per cent

of swine show some sort of bruise on their hams. Most of these are due to kicking.

Overloading.—This causes crippling and death. The load should be snug, but never overloaded and never so light as to permit the animals to batter about. The use of gates to confine the load properly pays good dividends.

Mixed Loads.—This is inexcusable in livestock transportation, yet it is seen in almost every market. Hogs or other small animals are placed underneath cattle. Sometimes the shipper is unaware that his small stock was loaded in a truck which later was crammed with steers, bulls, old cows, etc. Trampling is certain to occur in such a load.

Dehorning.—Unfortunately, most cattle have horns. These are extremely destructive when cattle are crowded in trucks and stock cars.

The gory jobs of dehorning grown stock can be avoided by removal or destruction of the horn buttons on calves.

Equipment.—Trucks and railroad cars in which stock is to be shipped should be carefully examined after cleaning for splinters, protruding nails, bolts, etc., loose boards, or faulty floors. All these things cause bruising and produce a great deal of unnecessary suffering. Vehicles should be bedded according to season with sand, straw, etc.

Drivers.—Truck drivers are important in loss prevention. Quick stops and starts jam the load so bruising, downers, and crippling result.

Disease.—Although disease enters into the livestock loss prevention field, our National Board feels that it will apply its greatest efforts to the transportation and handling losses and support the disease control authorities who are doing such an excellent job in that field.

Grub Control.—Grubs probably destroy or damage more leather than man does by bruising and jabbing the livestock. If we could properly assay the leather loss in our nation for a year, we would probably find it outstripping the fifteen or more millions of dollars in loss of meat from injuries and crippling.

Grub control programs are becoming more widespread each year, bringing ample profits to those who participate in them. Fly control, louse control, and general insect and parasite control, even for internal parasites, must be instituted throughout the entire livestock industry. The total loss among animals of all characters due to parasites, internal and external, no doubt exceeds the total profit from the livestock industry each year. Veterinary medicine will do much to reduce that loss.

Veterinarians should be informed on livestock loss prevention work and on proper methods of handling and transportation so they can advise their clients reasonably on safe marketing practices. The veterinarian's responsibility to the livestock owner does not end at treating sick animals but carries on through the successful raising and marketing of livestock, with the final satisfaction coming from knowing that every possible pound of animal was pro-

duced and marketed in a healthy condition and with a minimum of suffering.

DISCUSSION

DR. W. J. EMBREE (Columbus, Ohio).—It is very interesting, in regard to livestock loss prevention, to find some clue as to results. The report of the American Railway Association on freight claims for the year 1945 presents some very interesting information. This association divides commodities shipped in transit into 40 different classes, on which approximately \$52 million was paid in claims in 1944 and approximately \$77 million in 1945, easily a one-third increase on the group. A few more cars of livestock were shipped in 1945 than in 1944, with a reduction of \$15,000 in claims in 1945.

Of all of the material shipped, livestock was the only active commodity on which reduced claims were filed and paid. To analyze this statement just a little further, the railroads spend a large amount of money on what they call property protection and freight-claim prevention. They have their own organizations working constantly on this program. In the whole group, there is only one commodity in which the shippers or producers have joined the railroads to try to help them to reduce losses, and that is livestock. And we get the reduction.

Surely that should be a point to the railroads to try to encourage outside help, but it is very gratifying to note that we can pick up one indication that we are getting results.

On Veterinary Ethics

Every branch of medical science today is making tremendous contributions to the welfare of mankind and to the animal kingdom. Although innumerable obstacles markedly delay medical advancement, we are moving forward step by step.

One of the most important considerations in maintaining the high standing of any profession is the establishment and observance of certain ethical principles. We of the veterinary profession appreciate our fine Code of Ethics as a guide in professional life, but I should like to present a few additional ethical principles of which we might well become aware.

The subject of professional ethics in advertising is adequately treated in the Code of Ethics. There is, however, a basic truth in advertising which is essentially important. "The most worthy and effective advertisement possible. . . is the establishment of a well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of charac-

ter and conduct."¹ If we follow this type of advertising, the prognosis in every case will be most favorable.

The veterinary profession would function far more smoothly if there were a greater coöperative feeling—even a feeling of sincere interdependence—among its practitioners. There should be a minimum of competition (or not any) among the members of any branch of medicine. Are we not all striving toward a common goal? Then, why compete against one another? In fact, we should consult each other when doubtful or when difficult cases come to our attention. Consultation should not deprive any veterinarian of his personal respect. Rather, he should be more respected for having made an attempt to offer better professional service. Also, I feel that it is inadvisable for a veterinarian to render his abilities under conditions that prevent adequate service. To do so is detrimental to himself, his practice, and his profession.

Physicians in human medicine are requested, in the "Principles of Medical Ethics" of the American Medical Association, "to warn the public against the devices practiced and the false pretensions made by charlatans which may cause injury to the health and loss of life." Veterinarians have been doing this for years. Let's continue to do so.

Hippocrates said concerning a physician's deportment: "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life."² Surely we, as veterinary physicians, also should appreciate the challenge in these words. Anyone can recognize, but not everyone can face, a challenge.

We can avoid criticism at any time by saying nothing, doing nothing, and being nothing. By practicing veterinary medicine in an ethical way, we can avoid criticism by saying something, doing something, and being something; that something is ethical. —J. R. Wadsworth, V. M. D., Thompson Ridge, N. Y.

¹Principles of Medical Ethics of Am.M.A., Article I, Section 4: 8.

²Principles of Medical Ethics of Am.M.A., Article I, Section 3: 7.

The coöperative brucellosis control program is in its thirteenth year.

The Mexican Outbreak of Foot-and-Mouth Disease. IV.

Summaries of previous developments regarding the outbreak in Mexico were published in the March, April, and May issues of the JOURNAL.—The Editors

The officials in charge of the campaign to eradicate foot-and-mouth disease in Mexico decided, at a series of meetings in Mexico City early in May, to use all available resources, including manpower, supplies, and funds. This policy, besides being scientifically sound, they believe to be the most economical. The more rapidly infected and exposed animals can be destroyed, the less opportunity there will be for the disease to spread and the more quickly it can be stamped out.

From the beginning of the outbreak, which was diagnosed last December, up to April 22, the eradication forces consisting chiefly of Mexican personnel slaughtered and buried about 18,000 animals. Slightly more than half of these were cattle, the remainder being sheep, swine, and goats. In addition, about 75,000 apparently healthy animals have been sent to slaughter in the main quarantine zone in southeastern Mexico, in accordance with plans for reducing the numbers of susceptible livestock in that area. The total of about 93,000 animals represents an average slaughter on the premises, plus slaughter by evacuation, of about 775 head a day. The highest rate of slaughter on the premises has occurred since the latter part of March. The officials have now set a minimum goal, for field slaughter, of 1,000 head a day with the expectation of doubling or even tripling this number under favorable working conditions. An additional 1,000 head are to be evacuated for slaughter in accordance with the livestock reduction program.

OXEN REPLACED WITH MULES

Livestock owners have, for the most part, accepted the eradication program as necessary for their own future welfare. Fair appraisals and prompt payment of indemnities for animals destroyed have helped to create increased coöperation from livestock owners. An element that has further enhanced support of the program is the assistance being rendered by Mexican officials in replacing work oxen, infected with

foot-and-mouth disease, with mules which are not susceptible to this malady, thus helping to sustain agricultural production.

Up to the first week in May, about 12,000 oxen had been destroyed but have already been partially replaced with about 5,000 mules. About 30,000 more mules are needed to take the place of oxen which are to be destroyed. The majority of these mules will be obtained from northern Mexican States.

ERADICATION STRATEGY

During the next few weeks and months, the strategy of campaign officials is to concentrate efforts on destroying the several centers of infection that have appeared outside the main zone where the disease first occurred. Suppression of the infection in those outlying areas will reduce the danger to (1) the noninfected areas of Mexico, principally in the northern states, and in Jalisco and Michoacan, (2) the United States, and (3) Guatemala and other Central American countries. The plans also include a reduction in the number of wild animals that are potential spreaders of infection. These and subsequent operations, according to the plans, will confine the disease to the present main area, which will then be subject to concentrated attack until eradication is complete.

FULL AGREEMENT ON POLICIES

Agreement on all major policies and general methods of field operations was reached by members of the Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease which met in Mexico City. The major policies governing the conduct of the campaign include the following:

An all-out intensive drive to eradicate the disease at the earliest possible date, with outlying centers of infections to receive the first attention.

Immediate strengthening of the quarantine.

Decision to exclude from the campaign the use of vaccines, alleged cures, or other treatments, and to use only the time-tested methods of quarantine and slaughter that

From the May 17, 1947, report (supplement No. 4) of the Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

have fully demonstrated their effectiveness.

Supervision of expenditures through a system of joint Mexican-United States appraisals of condemned animals and other property, and reciprocal inspection of accounts and records.

The fullest possible use of modern digging, disinfecting, and transportation equipment, including some use of airplanes for the quick movement of key personnel, records, and payrolls.

The disposal of more animals by slaughter and burial and a reduction in the number salvaged due, in the past, to lack of adequate burial facilities,—a lack that is rapidly being overcome by the arrival of more mechanical equipment.

Agreement to permit representatives of Mexican livestock associations to serve as consultants in the appraisal of purebred and other improved stock.

Consultations with persons representing fighting-bull interests for the purpose of obtaining proper valuations on the four recognized classes of these animals.

Continued assistance to owners in the replacement of work oxen with mules or tractors, together with other measures for reducing the impact of the eradication program on the agricultural economy of the affected areas.

SEASONED VETERINARIANS PARTICIPATING

To give United States participation in the joint campaign maximum effectiveness, the U. S. Department of Agriculture has assigned to duty in Mexico several of its most experienced veterinary specialists, aided by a staff of younger veterinarians also of demonstrated ability and resourcefulness in field work. The United States group, which will work with their Mexican colleagues in supervising field activities, includes several veterans of former outbreaks of the disease in the United States. They are Dr. M. S. Shahan, codirector of the campaign, Dr. L. R. Noyes, Dr. F. H. Shigley, Dr. A. W. Rice, and Dr. A. E. Wardlow. The United States staff, early in May, included approximately 25 veterinarians, with more due to arrive shortly. An office force will largely relieve them of routine administrative details. The operations include a system of full reports so that both countries may be reliably and periodically informed of the progress of the joint undertaking.

The Epizootiology of Foot-and-Mouth Disease

Turning back to the history of the foot-and-mouth disease outbreak of 1914-1916, one is impressed with facts every veterinarian and stockman should keep uppermost in mind now. During the first two years of that outbreak, the disease occurred in 3,566 herds involving 172,000 cattle, swine, and sheep in 22 states. According to a report by Chief John R. Mohler who directed the final extermination of the disease, a majority of the outbreaks were traced to their origin. Over 1,600 of the herds were found to have been infected by animals brought upon the premises from contaminated stockyards, stables, and pastures; 672 herds from persons through community exchange of farm hands, stock buyers, and medicine peddlers, *et al.*; 411 herds from contaminated stock cars, railway feed yards, drinking water, and miscellaneous contacts in transit. A few herd outbreaks were traced to dogs and other small animals. The California outbreak of 1924-1925 was traced definitely to ships' garbage from the Argentine. Arranged in the order of their importance, the spreading mediums were shown to be animals, persons, stockyards, railway feed yards, small animals, and miscellaneous material transported from places where foot-and-mouth disease existed.

Infected live animals are, therefore, by far the most significant contaminants, if not the principal, or only, means of contaminating nonliving carriers.

The slaughter of the sick and directly exposed animals and energetic disinfection—the American system—will doubtless be followed to exterminate the disease among the 2,000,000 or more animals reported to be involved in the Mexican outbreak. Some of these are within 400 miles of the international border. The virus leaped farther than that in the outbreak of 1914-1916.

The international conference held in Washington in February and the funds appropriated by the Congress to wage a vigorous war against the Mexican misfortune appear to indicate that there is no intention to compromise with the reservoir and propagator of the virus—the receptive animals. The California outbreak in 1924 was not terminated until 22,000 deer were hunted and killed.

Historical Sketches and Memoirs

III. The General Practitioner

(Continued from May Journal)

L. A. MERILLAT

Chicago, Illinois

36.

The activities of the partnership I am describing were dramatized with variations in all large American cities. Ours began at the very time the curtain was drawn over the sensational 1890's—the actual birthtime of the veterinary profession as a going concern. Short term schools had passed into history, and mushroom ones, popping up here and there, were challenging the AVMA's authority to check their right to do as they please. New York State Veterinary College was four years old. The AVMA had ventured as far south as Nashville (1897) and out west to Omaha (1898). Bacteriology was undergoing phenomenal growth. The discovery of the causal agent of bovine piroplasmosis was arousing interest in ixodic and insect vectors. State associations were beginning to gain ground. Practice laws had been passed in the principal states. Listerian methods for animals were begging attention. The enrollment of students was increasing. The livestock industry was booming, practitioners were happy and prosperous. Unfortunately, there was lack of collaboration among the colleges. *Per contra*, they were girding for a fight that was to last for twenty years, a struggle for fees by the private schools and for larger student bodies by the poorly patronized public ones. For both groups, it was a case of get students or perish. While this was going on, W. & M., with an eye on business and no tottering college to finance, went on a money-making spree, never, however deserting association work, devotion to education, and keeping up to date. The peregrinations all over the country to participate in association work are recalled as one of the most pleasant and gainful distractions of my professional life—a hint that practitioners might solicit the call of their colleagues in that rôle for personal gain.

These travels gave me a close view of the contest between the two groups of veterinary colleges—the strong private and the

weak public ones—that was to keep veterinary medicine from normal advancement for the next twenty years or more. General knowledge of this harmful strife is blurred because all of the facts never got, unbiased, into the current periodical literature. The basic cause was the lack of interest in the professional training of veterinarians by the states since colonial days which is still inadequate up to this hour. Another sketch will deal with the details.

37.

This W. & M. fling into the fields of practice, education, study, and association work lived to see the coming of a greater menace than the army of non-graduates. While the principal task of organized, semiorganized, and unorganized veterinarians up to the twentieth century was to get practice acts on the statutes, fortifying that part of the profession's substructure became pretty much of a forgotten chore in the forty years ahead. That is to say, *better things through better laws* in the clinical field never reached the heights expected by the pioneers. The building of a veterinary science and seeking recognition for it by first establishing law and order in its application, in the hope of forming a so-called learned profession out of the material at hand, was soon deserted for supposedly loftier plans—education, research, ethics—which unfortunately did not also provide barriers against the encroachments of unholy agencies more harmful to the dignity and usefulness of veterinary medicine than the well-meaning nongraduate practitioners they (the laws) aimed to eliminate. We saw veterinary medicine desert the only reason for its existence in the first place—the prosaic thing called practice, clinical work in the barnyards and stables—and take up instead a grandiose program which in the home stretch we can still see was bewildered by the obstacles too big to remove. Name them? Heck, no. They've become so big and powerful that it's *lèse majesté* to "case" them, to borrow a word

from the rackets. The difference between *then* and *now* is that practice—clinical work—was held up as the *raison d'être*, unashamed.

At 1827 Wabash Ave., Chicago, the activities were not trivia. It was the office of the Illinois state veterinarian for eight years, of the Illinois state association for nearly twenty years, and of the AVMA for two years, and it held three professorships at the Chicago Veterinary College: cattle practice (Wright), physiology (E. Merillat), and surgery (L.A.M.). It was the host of many visitors passing through Chicago and a popular place for students to congregate during the surgical hours. With no obligation to do so, a row of wooden seats were built for their convenience. These clinics were private and in no way connected with the CVC.

Since boasting is the self-approved style of this sketch, it is apropos to claim that here was the most modern surgery of its time and the best equipped with instruments and apparatus. There was nothing missing. The assemblage of standard and special instruments were worthy of high praise. The surgery was the proving ground of Sharp & Smith and Haussmann & Dunn, pioneer designers of fine instruments suitable for veterinarians. The collection deteriorated during my two years of absence in the military service (1917-1919), but there were enough special instruments left to enrich the treasury of the Eastern Iowa Association with a sizable sum when presented to its members to dispose of as the officers saw fit. Another interesting memorial of this surgery is an enameled instrument cabinet at the palatial Bramer animal hospital at Evanston where, after forty years, it doesn't degrade the other furniture. This has to be told to prove that the veterinary surgery of forty years ago was not so bad. The outer clothing of the staff were white, ankle-long, muslin coats such as are worn at the wholesale markets of the large packing houses. The garments of the human surgeon were too thin for our bloody operations. The canine table was wooden, smooth, varnished, and home-made. The only tables on the market then had a metal top studded with key holes for fastening dogs of different length. Measured from Listerian standards that was the worst abomination ever wished upon the small animal surgeon.

38.

Aseptic work was the law in our indoor surgery more than forty years ago. I sat in an audience a year or so ago and heard a speaker (in good faith) tell how to clean up a contaminated accidental wound by trimming off the surface. That was our customary practice almost fifty years ago. We called the technique "uncarpeting wounds" and described the details to students' way back when. Great tearings of skin and underlying muscles, 15 to 20 in. long, with deep, irregular, anfractuous cavities were made to heal by first intention. That is, the skin held and the cavities cicatrized without interruption. Later, the technique² was improved by the use of Mayo's running loops which fixed the skin against movement. As a matter of fact, assistants who did not achieve that result were told to seek the cause of their failure. There were no sulfa drugs and antibiotic agents to cover up. A moral may be drawn at this point: Do not claim anything to be original before taking a look at the literature. Galen or Paré may have beat you to it.

39.

Shortly after the turn of the century, a popular comedy that made record runs in New York and Chicago was "Potash and Perlmutter," a skit staging partners who liked each other quite well despite their numerous spats. Piqued at one of his partner's foibles, Perlmutter snorted, "I vunder who invented partners." In my case, there was much for which to thank the inventor of partners, for, ours was a long, pleasant, and successful partnership. Different as were our dispositions, not once in the many years did we have even the semblance of a quarrel and the reason was that we agreed not to hatch any. Quarrels that break partnerships are the cumulative effect of trivial huffs hatched by long incubation, and provocative explosions of anger belong in the kindergarten. The chief advantage of partnership in the clinical field is the rest and recreation, absence on business, and sick leave one can take with easy conscience.

¹Merillat, L. A.: Wound Treatment. Vet. Med., 10, (June, 1915): 407-410.

²Ibid.: Does Aseptic Wound Treatment Reward the Veterinarian for the Time and Trouble? Illustrated clinical report. Vet. Med., 11, (July, 1916): 539-540.

One's affairs are left in safe hands. Wright's hobby was ducks and geese down on the Illinois River or muskelonge and bass in northern Wisconsin. Mine was attending association meetings and fussing with a farm down in Ohio. Neither of these could have been satisfied single handed without the penalty of dissatisfied clients, or of outright neglect.

And another thing, honesty must be absolute. Any doubt on that count is the signal "don't." Moreover, to be a good partner one must not complain about working harder and longer hours than one's partner. That's always the beginning of the end. As a rule, such things even up on the long run. Then, I regret to add that ambitious wives have broken up not a few of the partnerships I have known. "You're doing all the work and he's getting the money. His wife has a new set of furs and a dream hat and here 'I haven't a thing to wear.'" This goes for father and son, brother, and no-kin types of veterinary partnerships. The facts are entered here as warnings. They are based on a pleasant personal experience of years' duration and many observations. If you haven't a give-and-take temperament, play solitaire where you will learn how silly it is to cheat, and to nurse grudges that sooner or later land the best firm on the junk yard.

40.

This sketch can be summarized in a few words. First off, "Wright & Merillat" is used here as an impersonal thing to illustrate by example that the general practitioner need not neglect his duty to his art, nor to himself and family, because of the nature of his occupation. On the contrary, help and devotion to his profession is but helping himself. The figure here set up as a pattern had no outside subsidy in money or influence and had no urge save the pleasure of doing its bit toward better *education*, better *associations*, better *literature*, and decent *conditions for the general practitioner*. We never ceased to help achieve these, and never sought nor took any material reward.

Other big equine practices independent of a college to attract clients were those of Berns, and Bell of Brooklyn; McCully, MacKellar, and the Cattanaich's of New York City; Faust of Poughkeepsie; Kelly of Albany; Shepherd of Long Island; the Som-

merville's of Buffalo; Spangler of Baltimore; Meyers of Cincinnati; Newton of Toledo; Blattenberg of Lima; Brenton of Detroit; Schreiber of Memphis; Bovett, and the Jaffray's of Chicago; Gysel of South Chicago; Ettienne of Montreal; Ramiccetti of Omaha; Statter of Sioux City; Cotton of Minneapolis; and Crowley of St. Louis. These are named for the expressed purpose of making invidious comparisons. Some bestowed much, some a little, and a few were poachers. W. & M. want a place on the list of independent private practitioners who did not forsake the workers in behalf of a better future for the general practitioners. So endeth the reading of the third libation.

(To be continued)

The AMA Centennial Anniversary, 1847—1947

Shortly after this issue reaches the reader, the American Medical Association will be celebrating a hundred years of service to mankind at Atlantic City, N. J. The AMA was founded by a small group of physicians in Philadelphia, May 5, 1847. The date of the centennial session is June 9-13, 1947. "There are indications," says the weekly journal of that association, "that the attendance will rival that of any other meeting ever held in the history of the organization." The Post Office of the United States is commemorating the hundred years by issuing a special stamp to be placed on sale June 9, and the new 1,200-page "History of the American Medical Association" will be available for distribution. Famous men will address the sessions and nation-wide broadcasts of important events have been arranged.

Among the distinguished foreign guests announced are surgeons, internists, and specialists in other fields from a number of foreign countries. Also announced are official delegates of foreign governments, or the medical associations, of Switzerland, England, China, Iraq, Iran, South Africa, Mexico, and Canada.

In addition to the general and special (scientific) sessions, technical and scientific exhibits, entertainment and recreation, a day (June 12) is set apart for symposiums on Cancer Research, Virus Diseases, Therapeutic Abortion, Liver Diseases, and Ulcerative Colitis.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Twin Bull Calves—One an Anomaly

R. R. GRAVES, B.S., M.A.

Valparaiso, Indiana

IN THE ABNORMAL young, a doubling of the organs or parts along the median line of the body is occasionally found. I have seen mounted specimens of two-headed calves. Turtles appear to be more susceptible to duplexity than other species of animals. Hildebrand,¹ reviewing the literature of twinning in turtles, found descriptions of 19 partially twinned turtles, published between 1896 and 1933. Many of these partial twins had two heads.

Recently, the newspapers told of the birth of a baby in England that had two heads. It lived only a few days. Helen

showed that there were two breast glands; two hearts enclosed in one membrane; four lungs; two stomachs; one large liver; two sets of intestines merging into one large intestine leading to a common outlet. There were four kidneys leading to a single bladder. They had two separate spinal columns, hence separate nervous systems.

Such duplication of parts is usually attributed to factor mutations in the germ cells or the somatic cells. It was reported at one time that a research worker had discovered a recessive factor for reduplication of legs in the *Drosophila*.



Fig. 1—The malformed male fetus from cow 230. Cow 230 was the dam of cow 287 that produced twin calves, one of which was malformed.



Fig. 2—The malformed male twin (herd number 994) showing the extra leg hanging from the pin bone. The dam of this calf was cow 287, a daughter of cow 230.

Black² discusses the case of coalescent twins in Moscow. These girl twins lived for a year. They had two heads and four arms. Fusion began at the shoulders. They had one torso. They slept separately and had individual reactions to pain. Autopsy

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Another type of mutation, a human mosaic, was reported in the June, 1945, issue of the *Journal of Heredity*;³ it described a young Russian woman bald on the left side of her head, with pigmented skin on the left side of the face, neck, and body from the forehead to the groin; the pigmentation and the baldness ending strictly on the median line. The entire left leg was pigmented as though covered

by a stocking. The skin on the right side of the body and the hair on the right side of the head was normal. There was a difference in the rate of perspiration on the two sides of the body, the pigmented side perspiring more abundantly. The author proposes that the variation was caused by a mutation of one of the blastomeres, namely the left, and that the left side of the organism reflected all the features resulting from the mutation.

On Feb. 3, 1933, a registered Holstein-Friesian cow in the experimental breeding herd at Beltsville, Md., dropped twin bull calves, both living. One of these calves had a reduplication of several parts.

Dr. Fred Miller,* the veterinarian in charge of the health of the herd, made a report in which he described the calf and his finding of the extra parts on autopsy. The report reads:

On 2-3-33 a registered Holstein cow, herd number 287, gave birth to twin calves at the close of a 276 day gestation. The first one came normally and appeared to be a normal male weighing 80 lb. Within an hour another calf was on its way apparently normal, but its hips stuck in the pelvis of the dam. A little traction released it and it was found to be misshaped in the rear portion of the body, having some extra parts. This calf weighed 92 lb. This was the sixth pregnancy of this cow, the first five terminating with normal single births.

The udder of this cow was so enormous that the least pressure caused pain. It prevented her lying down for several days. Therefore, following the birth of the calves she was so nearly exhausted that an extensive survey of the placenta was not feasible. However, a less extensive examination showed evidence that there were two placentas joined by blood vessels and connective tissue.

The calf born first appeared normal in every respect. It ate, played, slept, and functioned as other normal calves do. The second calf appeared normal about the head, neck, fore legs, chest and abdomen, but the pelvis seemed higher on the left side than on the right, and somewhat forward on the right side, and an extra leg hung limp from the region of the right pin bone [tuber ischii]. The extra leg was retarded in its development. Further examination revealed the presence of two sheaths, two penises, two scrotums, each containing a testicle, and eight teats; also the absence of an anal opening.

In order to establish an opening for the rectum an incision about 1½ in. long was made in the perineal region. The opening was continued through an inch of tough fibrous tissue that contained some muscle fibers. The rectum

was found attached to the lower part of this fibrous mass. It was brought into the incision, anchored with several sutures and an opening made in the gut. The edges of the new opening of the rectum were sutured to the edges of the skin incision. The meconium was removed with an enema of physiological salt solution and the calf began to eat, play, and sleep like normal calves of its age. There being no



Fig. 3—The internal genitalia of the malformed male twin. (7) Urinary bladder; (8) testicles; (9) ductus deferens; (10) seminal vesicles; (11) extra seminal vesicle; (12) extra duct; (13) ureters; (14) functioning penis; (15) extra penis; (16) retractor muscle; (17) rectum; (18) mass of fibrous and muscle tissue around anus.

sphincter to close the artificial opening the liquid feces passed more or less constantly. When the calf lay down the abdominal wall became smeared as far forward as the umbilicus. The artificial opening healed promptly. The only treatment necessary was to keep the edges free from feces and dirt. Inflammation occurred around the umbilicus and ends of the sheaths though no pus formed.

The normal calf died on 2-9-33, a short time after eating its regular morning meal. When posted it was found that all of the organs and parts were of normal size and structure and in their proper places, except the stomach, which was greatly distended with milk and a small wad of straw. The pylorus and duodenum were of normal size. Milk in various stages of digestion was found throughout the intestines. It may be assumed that for some unknown reason the action of the intestines had been slowed up and the milk held in the stomach produced a distention of that organ and a

*The late Dr. Miller was in practice at White-water, Wis., at the time of his death.

slight enteritis, resulting in the death of the calf.

The anomalous calf died 2-12-33 after a day of drowsiness and unsteadiness in all voluntary movements. Autopsy revealed that all organs and parts forward of a plane through the umbilicus were of normal size and structure and in their proper places. The urogenital organs and pelvis were abnormal in the following respects. There was no pubis; in its place existed a fibrous band. The pelvis was twisted so that the sacrum curved laterally. The extra leg was attached in the region of the right pin bone by fibrous and cartilaginous tissue. Many strands of muscle were found in the subcutaneous tissue in the region of the scrotums and rudimentary teats. One apparently normal testicle was found in each of the two scrotums. Their ducts passed through the inguinal rings and on to the urethra similar to those in normal bulls. Rather prominent lymph glands were located at the base of each scrotum. The penis on the right side had its origin in the tissues at the right pin bone and extended along the abdominal wall almost to the um-

bilicus. The other penis was visible from the fibrous strand of tissue in the pubic region, to a point near the umbilicus. At the fibrous band of tissue, it formed an acute angle and joined the neck of the urinary bladder. There were three seminal vesicles, two well-developed ampullae and a smaller tube at the base of the seminal vesicles. The left kidney was approximately $5\frac{1}{2}$ in. long, $3\frac{1}{2}$ in. deep, and $2\frac{3}{8}$ in. wide, and the right kidney was about 1½ in. long, ¾ in. deep, and ¾ in. wide. Inflammation evidently having its origin in the umbilicus prevented the release of urine from the only functioning kidney which caused the death of the calf.

When the pelvis was cleaned of muscle and other tissue the ilium, a part of the ischium, the pubis on the right and left sides, and also an extra ilium on the right side were found. The symphyseal branches of the pubis and ischium were incomplete on both sides. The extra ilium presented the wing and shaft, but was minus the acetabulum; in place of the acetabulum the shaft flattened in a manner similar to that part of the ischium which forms the tuber ischii. The extra bone was joined

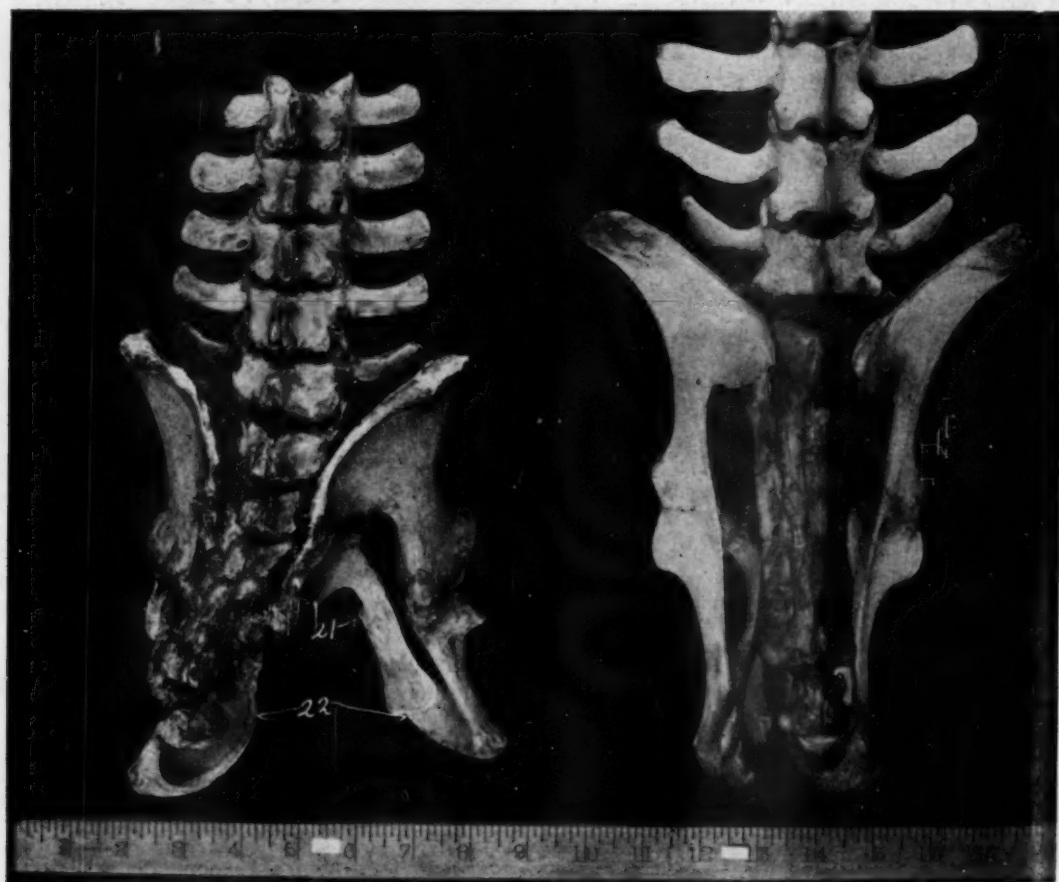


Fig. 4—The abnormal development of the skeletal parts in the pelvic region of 994, the abnormal twin, compared with a 4-month-old, normal Jersey heifer. (21) Extra ilium; (22) incomplete symphyseal branches.

to the right side of the sacrum just posterior to the wing of the apparently normal right ilium. It also attached to the incomplete symphyseal branches of the right ischium and pubis. This extra ilium was so situated that the sacrum was pushed to the left, and the right ischium downward and outward.

The extra leg was attached to the rear part of the superfluous ilium by ligaments, muscle, and cartilaginous pieces. The skin was continuous with that of the body and enclosed fascia, muscle, ligaments, blood vessels and the following bony structures.

A piece of bone, with a cartilaginous covering, measuring 4.55 by 3.05 by 2.50 centimeters, was found in the muscular and ligamentous attachment.

The rest of the leg was joined together, presenting at the upper end, the shaft of a bone with a rounded proximal end. The distal end seemed to be that of a fused tarsus showing a rudimentary tuber calcis, its length being 8.80 centimeters. With the next bone it formed an arthrodial joint.

He was out of a daughter of Denton Colantha Sir Rag Apple 87426, and the mother of these twins was also a daughter of Denton Colantha Sir Rag Apple. She had dropped 2 other normal calves (heifers) by 379. Altogether, the dam gave birth to 9 calves including the twins. All were normal except this 1 twin. In the gestation period following the one that terminated in the birth of the twins, the fetus was dead at birth, though properly developed and carried full time.

The double grandsire of the twins, Denton Colantha Sir Rag Apple, sired 55 bull calves and 50 heifer calves during his period of service in the Beltsville herd, including four sets of twins. The daughters of Denton Colantha Sir Rag Apple had 189 pregnancies in the station

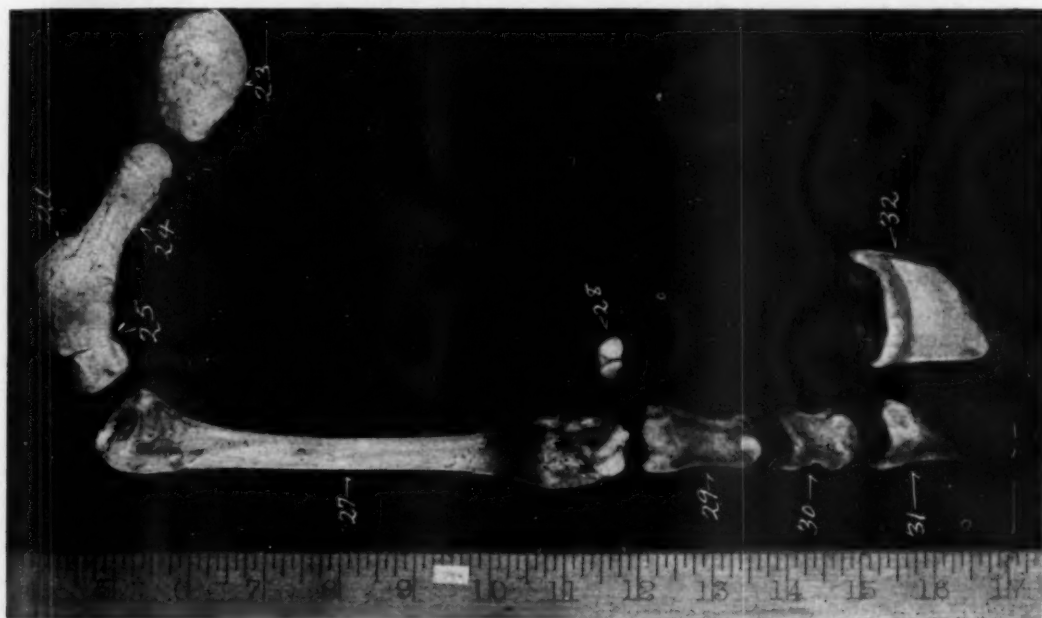


Fig. 5—The skeletal parts of the extra leg. (23) Piece of bone in ligamentous attachments; (24) shaft of bone; (25) fused tarsus; (26) rudimentary tuber calcis; (27) third metatarsus; (28) proximal sesamoid bones; (29) first phalanx; (30) second phalanx; (31) third phalanx; and (32) hoof.

Next was a long cylindrical bone forming a ginglymus joint with the one below it. The cylindrical bone is 19.0 centimeters long. Its position, length and type of joints formed with adjacent bones give it the appearance of the third metatarsus. At the metatarso-phalangeal articulation two proximal sesamoid bones are located.

The rest of the bony structure consisted of the first, second, and third phalanges of the third digit. The distal sesamoid was not found.

These twin bull calves were by sire 379.

herd, including 12 sets of twins. This abnormal twin was the only malformed calf born to the daughters of Denton Colantha Sir Rag Apple.

The dam of cow 287, that gave birth to these twins, was the foundation cow 230. Cow 230 gave birth to 7 calves in the Beltsville herd, 1 bull and 6 heifers. She dropped her last calf on Nov. 7, 1925, when she was 9 years, 8 months old. At this time,

she was suffering from a muscular trouble in the hind legs that made it difficult for her to get up and down. However, she was bred again and conceived, but the muscular condition grew steadily worse and she was slaughtered on Oct. 21, 1926. Autopsy showed a 7-month, male fetus that was malformed. Its hind legs were twisted around each other. There was practically no pelvis or development back of the thoracic vertebrae. A tail about 3 in. long was attached to the back between the hips. There was no anus. There was no autopsy on this calf, and there is no record of any reduplication of internal organs.

The only apparent common defect in these 2 related malformed calves was the absence of an anus.

Cow 230 was not related to Denton Colantha Sir Rag Apple. The malformation in these 2 related calves does not appear to have been due to a recessive factor as is the case with so many lethal malformations, else it would have occurred in greater numbers in the station herd, through the numerous progeny of these two animals. Through her 4 daughters, cow 230 probably has as many progeny in the station herd as any other foundation cow. Then too, there is a question whether these two related calves had the same type of malformation.

The causes of factor mutations are not well established. Here is the unusual occurrence of a mother and her daughter, both giving birth to malformed calves late in their breeding lives. Cow 230 was almost 10 years old when conception of the malformed calf occurred, and at that time she was in poor physical condition; cow 287 was almost 8.5 years old when conception of the twins occurred, and she was apparently in normal physical condition.

References

- ¹Hildebrand, Samuel F.: Twinning in Turtles. *J. Hered.*, 31, (1940): 16-18.
- ²Black, Helen: Coalescent Twins. *J. Hered.*, 29, (1938): 242-253.
- ³Zlotnikoff, M.: A Human Mosaic. *J. Hered.*, 36, (1945): 163-168.

Factors which contribute to hemostasia in one part of the body may be negligible at other parts.

The anticoagulant effects of dicumarol may continue as long as twenty days after the injection of a single dose.

Marrow Biopsy.—The day of the "peripheral hematologist" is over, the marrow examination having become a commonplace procedure. Instead of sternal puncture and sternal trephining in practice in human medicine, the veterinarian has but to determine the right bone to tap. The sternum will not do.

The stage of pregnancy, in its relation to the date of conception, can be determined by the quantity of pitocin-destroying enzymes a sample of the maternal blood contains. Pitocin, a fraction of the pituitary secretion, diminishes with alleged regularity as the pregnant state proceeds. Dr. Frank W. Page, University of California, described the technique in *Science*, March 14, 1947.

The use of tape setons in the treatment of deep-seated lameness of the shoulder and hip regions of horses was widely practiced in equine medicine up to the second decade of this century.

Venous hemorrhage yields to compression more promptly than arterial. Pressure within the vein is reduced with the aid of the valves and the natural changes in static blood.

Injured tendons, ligaments, and sheaths of horses ordinarily treated by blistering and firing respond better to short wave wireless irradiation applied with the inductotherm. Exposure for half an hour twice daily for a week is recommended.—*T. Herman Cold, M.R.C.V.S., in the Vet. Rec., Nov. 30, 1946.*

Either alone or as an aid to surgery, penicillin is effective in controlling about two thirds of the general run of established surgical infections.—*F. L. Meleney in Ann. Surg., Nov., 1946.*

A healthy bull in prime condition will ejaculate 6 cc. of semen—enough to inseminate 300 cows.—*From Farm Quarterly.*

Beware of rapid blood loss, even in small amounts, occurring in the course of an operation.

Sheep without wrinkles in their skin have been bred by the USDA.

A Discussion of New Developments in Glaucoma

MASON WEADON, V.M.D.

Washington, D. C.

IN A PREVIOUS PAPER, delivered before this body and published in the JOURNAL, a definition and description were given with emphasis on the special anatomic features, the highlights of physical diagnosis, the cause, and the medical and surgical treatment of glaucoma.

A scientific explanation of the causes of glaucoma has never been proved. What follows is, therefore, my own opinion.

The anterior and posterior chambers of the eyeball contain the aqueous humor—a thin, watery, slightly salty, albuminous fluid, incased in impervious membranes, which travels from one chamber to the other. The excess is carried off by the canal of Schlemm which arises in the apex of the posterior chamber triangle. This arrangement is necessary because all of the structures from the posterior chamber forward are nonabsorbing membranes. Were they not, the fluids of the eye would be absorbed and the eye and its structures would dry out.

THE THEORY

Dwelling upon this theory, I have concluded that the real cause of glaucoma is an agglutination of the albuminoids of the aqueous humor caused by inflammatory processes associated with distemper, other febrile diseases, or trauma.

These agglutinated albuminoids occlude the canal of Schlemm, cutting off the escape of the fluids and increasing the intraocular pressure. Medical treatment is not satisfactory, but temporary relief can be obtained by the application of 0.25 per cent eserine ointment into the eye every two hours. This treatment may be used as a preoperative procedure, as it helps to reduce the pressure.

THE OPERATION

There are four operative procedures for the relief of this condition. (1) Temporary relief can be obtained by a simple puncture of the cornea. (2) Pressure can be reduced for a longer period (about two weeks) by

the excision of an island of the iris. (3) It can also be relieved by the removal of the eyeball. (4) However, it is most successfully and permanently overcome by the removal of the lens.

For this latter operation, the eye is aseptically prepared by inserting into the eye and into the cornea a sufficient amount of sulfathiazole-procaine ointment to cover it well, every four hours for a 24-hour period prior to the operation, and a last cleansing application at the time of the operation.

The first incision is made with the cataract knife, incising the upper half of the circumference of the cornea as in the cataract operation. Make a large opening so that you can work freely.

Next, insert an instrument known as an "iris forcep," which is curved on the end and has rat teeth, into the opening of the iris, commonly called the pupil. Grasp the anterior capsule of the crystalline lens firmly and tear it free. The clear gelatinous mass of the lens will flow out and some of this can be taken out with the forceps and discarded. If some of this material gets away, it will be absorbed.

After the incision, the eyeball will collapse and may fill with blood but, with experience, one may locate landmarks and proceed. The iris forceps are inserted again into the same opening, to be sure the posterior capsule of the lens has been removed or has a well-defined opening so that the fluids can escape backward into the vitreous humor of the eye where they will be absorbed, which is the purpose of this procedure.

The cornea is not sutured. The antiseptic ointment is again applied to the cornea, but not in the wound. The lids are held in apposition by means of an in-and-out suture in the skin of the upper eyelid and then over to repeat the same procedure in the lower lid. Use three or four sutures to close the lids tightly. If the secretion from the commissure of the eye looks especially bad, injections of the sulfathiazole ointment may be applied between the stitches. Otherwise, the eye is left strictly alone because, if it becomes infected, nothing can be done to save it.

Presented before the Section on Small Animals, Eighty-third Annual Meeting, American Veterinary Medical Association, Boston, Mass., Aug. 18-22, 1946.

When the sutures are removed in seven to ten days, it is surprising to note how wonderfully nature has restored the shape of the eye and how well the incision has healed. There should be no difference in the eyes, except that the operated eye will be smaller.

DISCUSSION

DR. GERRY B. SCHNELLE (Boston, Mass.).—Did you pull out the capsule of the lens? You didn't cut it free?

DR. WEADON.—Pull it loose. The iris forceps will get hold of the anterior capsule and sometimes it will come out all in one piece, but the posterior capsule of the lens is not taken out. A large hole is made in it with the iris forceps so that the fluids will escape and be absorbed.

DR. W. C. GLENNEY (Elgin, Ill.).—Does this generally prove successful in cats?

DR. WEADON.—We have operated on only one cat, a 14-year old, and it was not successful. Glaucoma is not common in cats. I have only seen 1 case.

DR. JACK MINDELL (Albany, N. Y.).—Are you successful in removing cataract to the extent that the animal will regain a considerable amount of sight after the removal?

DR. WEADON.—Yes, we find that the amount of vision which returns to a dog is in direct proportion to his age. The older the dog, the poorer the vision. They will not lose their way between the door jams and can avoid chairs. They can't read the newspaper, but they don't need to. (Laughter).

DR. J. L. LOUCKS (Manning, Iowa).—Have you used the Elliott trephine for the dog?

DR. WEADON.—Not much to date. In man, the trephine is used, but that depends on the after-treatment. The human patient can massage his eye and keep the wound open, so that the fluid will escape.

I forgot to mention that we have found that, if we operate on one eye, the condition will seldom occur in the other eye, although there is no rule against glaucoma developing in both eyes.

QUESTION.—When you take out the lens, does it come out with the anterior capsule?

DR. WEADON.—The lens is composed of the capsule and the gelatinous mass. When the anterior capsule is removed, the gelatinous part will come out through the wound or drop to the bottom.

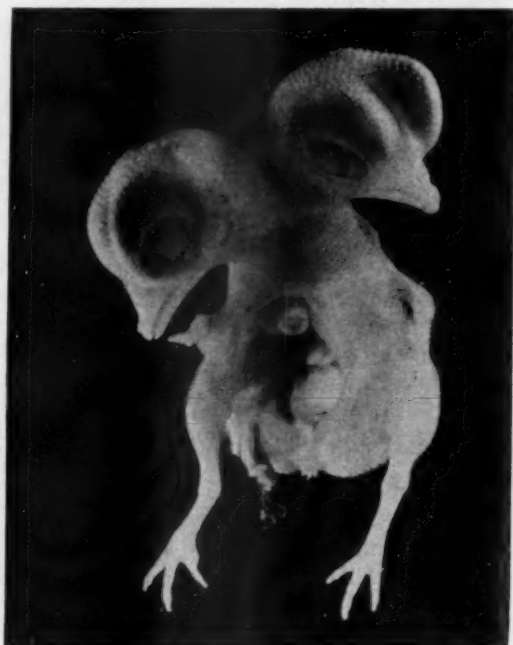
Two-Headed Chicken Embryo

In the course of routine collection of influenza virus from 13-day infected embryonated eggs on Apr. 4, 1947, this two-headed chicken embryo was discovered. The fault in the abdominal wall is also congenital. There are four wings, one left wing and one right wing forming the light area between the two necks. The light streak branching in the lower thoracic region is, we believe, the bifurcated spinal cord.

The embryo is of approximately the correct stage of development for its age, and the heads are perfectly formed and of equal size and development. The pelvis is abnormally wide. There is considerable edema of the lower half of the embryo due to the error of transferring it from the shell into



Two-headed chicken embryo showing break in abdominal wall.



Two-headed chicken embryo indicating the formation of four wings.

water, instead of an isotonic solution. The dark spots in the skin are hemorrhages resulting from the virus infection.—H. E. Calkins, Ph.D., and J. LaVere Davidson, D.V.M.

CLINICAL DATA

Clinical Notes

Fumes from cresol and other coal tar preparations are highly toxic to young poultry.—*U. of Illinois Release.*

A defense of the all-pullet flock! It can be expected that pullets will lay 20 per cent more eggs than they will in any subsequent year.

Animal husbandry and animal health are inseparable. Faulty husbandry is the most important factor in the genesis of major animal diseases.—*Dr. A. N. Worden in Vet. Rec. (Apr. 5, 1947).*

Penicillium patulum and *P. expansum*, molds related to the species from which penicillin is obtained, yield a newly isolated antibiotic drug (*Sci. News Letter, Apr. 19, 1947*). The discoverers are Birkinshaw and Michael of England.

Thiouracil, 1.0 to 2.0 per cent added to the ration of growing fowl, increases the rate of gain and improves the market value of poultry meat, according to published reports from the Missouri Agricultural Experiment Station and poultry experts of Michigan State College.

Phenothiazine in Blackhead

Following the report in the April JOURNAL (p. 239), based on a release from the Louisiana Experiment Agricultural Station, attention has been called to work done along the same line by Dr. C. M. Hamilton, Puyallup, Wash., which indicates that "phenothiazine is entitled to no credit for reducing the mortality the first year," and that "the only safe way to prevent blackhead is to raise poults on ground uncontaminated with the disease."

The conclusions, based on two years of work, failed to find cecal worms or cecal worm eggs until the birds were almost mature, and losses were consistently as great in the treated pens as in the controls. One pen lost 16 of 28 poults while they were being fed a mash containing 0.25 per cent phenothiazine.

That animals are much less dependent on the functions of the thyroid gland than the human being is not news to the veterinary clinic.

More than 70 different therapeutic agents have been tested against anaplasmosis, without specific success.—*Dr. Paul L. Piercy in Vet. Student (Winter, 1947).*

A cow's resistance to infection of the udder cannot be raised by vaccination or other immunization procedures, as judged from evidence so far presented.—*J. M. Murphy, D. V. M., in Guernsey Breeder's J., Dec. 15, 1945.*

Incubator Disinfectants.—In connection with studies of pullorum disease, Gwatkin of Canada (*Canad. J. Comp. Med. & Vet. Sci., 11, (Feb., 1947): 52-59*) found propylene and triethylene glycol to be of little value as incubator disinfectants.

ANTU.—The widely publicized rodenticide, ANTU, has the disadvantages (1) of low toxicity for rodents other than the brown Norway rat and (2) of establishing tolerance in rats not killed by the dose eaten. The tolerance is rapidly acquired and lasts a month, during which time other rodenticides have to be used to dispose of the survivors.

Vitamin Supplements Discredited.—Trials of various combination of vitamins (A and D; A, D, and niacin; A, C, D, and niacin), given to calves until 1 month of age, showed no change in the incidence of scours and death from that of the controls. The calves were left with their mothers for two days after birth, then fed whole milk for the rest of the month, and given access to red clover hay and grain, in addition to receiving the vitamins.—*Nevens and Kendall, Illinois Agric. Exper. Sta., J. Dairy Sci., 30, (March, 1947): 175-181.*

Cattle Scabies in the Northeastern States

D. W. BAKER, D.V.M.

Ithaca, N. Y.

AN INFECTIOUS skin ailment in the stabled dairy herds of New York State during the winter months has occurred annually for so long that most farmers remember bad

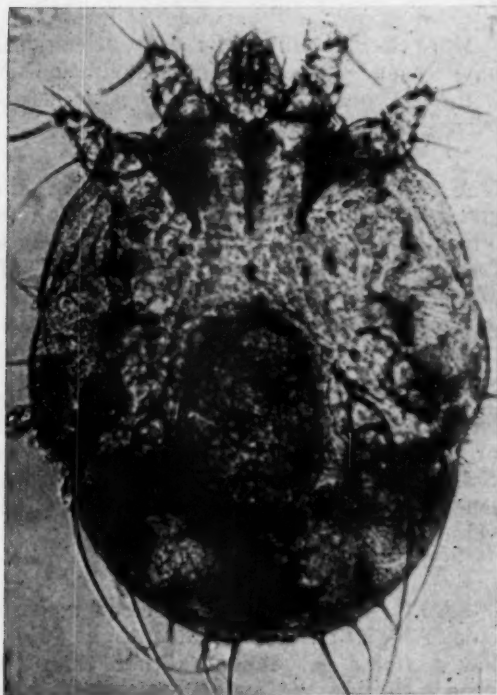


Fig. 1—*Sarcoptes bovis* (female). The actual size of this mite is 1/45 of an inch in length.

cases of it when they were boys. This condition is a parasitic dermatitis and is commonly called "barn itch." As it is loosely used, the term denotes any skin irritation manifested by rubbing and licking. According to Udall,¹ the term is used for ringworm infection and for all forms of mange.

According to reports from farmers and veterinarians, the incidence and apparent

Presented before the Section on General Practice, Eighty-third Annual Meeting, American Veterinary Medical Association, Boston, Mass., Aug. 18-22, 1946.

Dr. Baker, associate professor of veterinary parasitology at New York State Veterinary College, Ithaca, is a member of the Special Committee on Parasitology of the AVMA. This material constitutes a portion of the report of that committee.

¹Udall, D. H.: *The Practice of Veterinary Medicine*. 3rd rev. ed., Ithaca, N. Y., (1939):279-289.

pathogenicity varies greatly from year to year. During the past two or three years, however, the complaints have been more numerous than in former years. In the winter of 1943-1944 and again in that of 1944-1945, representatives from farmers' organizations appealed to the New York Bureau of Animal Industry, the New York State Veterinary Medical Society, and the New York State Veterinary College to take steps to bring this ailment under control. Last year, the replies to a questionnaire issued by the state Bureau of Animal Industry to the large animal practitioners in dairying sections suggested that there were hundreds of outbreaks involving thousands of cattle, but little specific information was obtained. The winter of 1945-1946 brought a repetition of the requests from the farmers' organizations. These were studied by the Committee on Public Relations of the New York State Veterinary Medical Society. A project to survey the disease and to study the methods of control, which could be applied in a practical way under our climatic conditions, was developed by the state BAI in coöperation with the Department of Animal Research of New York State Veterinary College.

EDUCATIONAL CAMPAIGN

Early in the winter (1945-1946), Dr. I. G. Howe and I studied the whole problem of cattle mange; we developed an educational campaign which has been carried out at least in outline and seems to have satisfied our objectives. In order to obtain publicity, particularly with the farming population and the veterinarians practicing in the farming regions, we asked permission to present a series of radio talks. Several of these were given over the national networks from stations in New York City, Schenectady, and Ithaca, during the months of December, 1945, and January, 1946. Replies, particularly to the series in New York City, showed that interested farmers listened in several of the New England states, New Jersey, Pennsylvania, and Maryland, in addition

to New York. An illustrated discussion, using both photographs and live subjects, on the disease in cows and man was presented at the annual veterinary conference in Ithaca early in January, 1946. A schedule of talks on cattle mange was prepared with the help of staff members of the state Bureau of Animal Industry, and these talks were given to groups of farmers, county

curately the number of affected herds and cattle and regions, since we had been told by veterinarians practicing in the St. Lawrence River Valley, the southern tier of counties, the Mohawk-Hudson River valleys, and the central regions of New York State that they knew of "hundreds of herds where the disease was 100 per cent worse this year than in 1944-1945."

CONTROL PLAN

In the plan of control which Dr. Howe and I had worked out for this winter, six veterinarians on the staff of the state BAI, aided by federal veterinarians, were assigned regions of five to ten counties as territories for survey and educational campaigns. By spending the greater part of the last six weeks in the field,

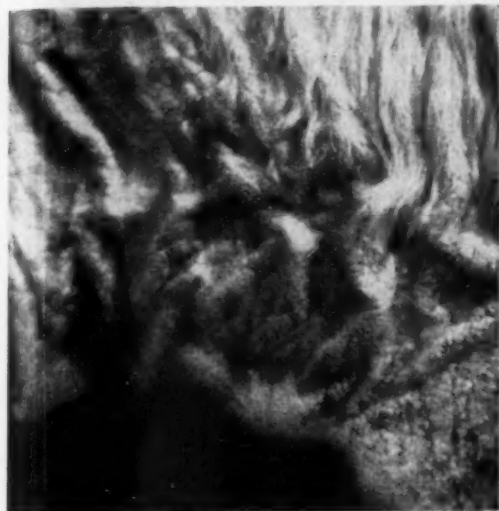


Fig. 2—Thickening and wrinkling of the loose skin in the flank of a cow, typical of sarcoptic mange.

agricultural agents, veterinary and lay dairy and milk inspectors, and to regional veterinary associations. A refresher course, provided by the veterinary college faculty, was given to veterinarians employed by the state and federal BAI veterinarians stationed in New York. On the second day of this course, several badly infected herds were visited, and diagnostic procedures were demonstrated. Six of the state veterinarians and three of the federal veterinarians were selected as a special group to conduct a field campaign; the program for these men was developed by Drs. Howe, Brown, and myself. During January, February, and March, formal reports of outbreaks of cattle mange or scabies were received by the BAI headquarters at Albany from about 50 herds representing 5,000 head of cattle. Most of these reports were verified by laboratory findings from microscopic examinations carried out in Ithaca, Albany, and regional laboratories. To most of us, these reports were of little significance in determining ac-



Fig. 3—Foreleg of a cow showing denuded area and bleeding which resulted from rubbing to relieve itching caused by sarcoptic mange.

One observation which has been of interest is the frequent occurrence of human cases of bovine sarcoptic mange by contact. We know of a few cases where a hired man has quit his job because he had suffered attacks of mange and refused to submit to reexposure.

From conversations with representatives of the livestock disease control agencies of most of the New England States, New Jersey, and other nearby states, we have learned that cattle mange is not limited to New York, but is a problem which confronts the livestock industry and the veterinary profession of the northeastern regions of the United States.

At the Thirteenth Annual Conference for Veterinarians held in January, 1946, at the New York State Veterinary College, Ithaca, Dr. I. G. Howe, chief of the New York State Bureau of Animal Industry, reported that, during the year 1945, 308 herds located in 31 counties were officially reported as being infected with mange. The names of the counties and the number of infected herds in each county are listed in table 1. The geographical distribution within New York is shown on the accompanying map.

TABLE 1

County	Infected Herds	County	Infected Herds
Broome	8	Madison	12
Cayuga	3	Montgomery	8
Chenango	25	Nassau	6
Columbia	2	Oneida	32
Cortland	1	Ontario	1
Delaware	9	Orange	1
Dutchess	90	Otsego	3
Essex	1	St. Lawrence	3
Franklin	2	Schoharie	56
Fulton	1	Suffolk	3
Genesee	10	Sullivan	2
Greene	3	Tioga	3
Herkimer	6	Tompkins	5
Jefferson	3	Warren	1
Lewis	1	Yates	6
Livingston	1		

This information indicates that the problem, caused principally by *Sarcoptes scabiei* var. *bovis* has assumed serious proportions in New York State in the last few years. The losses from lowered milk production, waste of feed and labor, and deaths of weakened and debilitated animals in both beef and dairy herds, all due to this disease, are enormous.

Among the causes contributing to its spread are listed the uncontrolled and unsupervised community sales, lack of accurate diagnosis, inadequate treatment, and the practice, on the part of owners of cattle, of indiscriminately mixing infected and noninfected animals.

CONCLUSION

The campaign aims (1) to acquaint farmers and veterinarians with the disease and its importance; (2) to inform veterinarians concerning the importance of thorough examination and accurate diagnosis; (3) to

outline methods of prevention; and (4) to demonstrate proper methods of treatment.

This campaign, through modern means of publicity, engaged the interest of all those concerned and undoubtedly will result in diminishing the incidence, and may lead to complete eradication, of the infection.

Formula 144

Formula 144 (Ft. Dodge), credited to a "Midwest Agricultural Experiment Station," is the handy contraction of diisobutylphenoxyethoxyethylmethylbenzylammonium chloride recommended as a non-toxic preventive of naturally occurring enterohepatitis of poults. It is given in drinking water at the rate of 1 tablet in 5 gal. during alternate weeks, observing proper sanitation, nutrition, and management.

Do Cows Like to Be Milked?

"Yes, if," says Dr. George Hopson in *DeLaval Monthly*. He explains that cows actually enjoy being milked when they have been properly prepared and conditions are favorable. In other words, if:

- 1) The attention is not distracted by eating.
- 2) The udder is properly prepared by bathing for one minute in water at least as warm as 130 F.
- 3) The flow of milk is started by drawing two streams from each teat into a strip cup.
- 4) The milking machine is then applied at once.
- 5) The machine is removed as soon as the milking process has been completed.

Other important factors in careful dairy management are gentle handling, quiet working, warming of the teat cups before applying, and proper adjustment of vacuum.

Dr. Hopson says that when a "managed milking" program, styled to the individual herd, is followed with regularity the cows show that they like to be milked by letting down all of the milk in three to four minutes and by producing more milk than previously. Added profit will be realized because there will be less inflammation and infection of the udder.

Amino acids act as strong activators of the respiratory processes in animal tissues.

Newcastle Disease [Pneumoencephalitis] in a Group of Young Chicks

D. W. BRUNER, B.S., Ph.D., D.V.M., P. R. EDWARDS, B.S., Ph.D., and
E. R. DOLL, M.A., D.V.M.

Lexington, Kentucky

THE ISOLATION and identification of Newcastle disease [pneumoencephalitis] in the United States has been discussed in recent veterinary literature by Beach;¹ Brandly, Moses, Jungherr, Jones, and Tyzzer;² Beaudette;³ Brandly, Moses, Jungherr, and Jones;⁴ Jungherr, Tyzzer, Brandly, and Moses;⁵ Brandly, Moses, Jungherr, and Jones;⁶ Brandly, Moses, Jones, and Jung-

tinued to appear up to the sixth week. They were composed of epileptiform attacks which were readily evoked upon agitation, distortion of the neck downward and laterally, incoördination, and some leg paralysis. Although the majority of the chicks developed respiratory symptoms, only 30 per cent exhibited nervous symptoms and 25 per cent of the 400 died.

TABLE I—Virus Titrations and Neutralization Tests

Inoculum	Virus Dilutions						
	10 ⁻⁴	10 ⁻⁵	10 ⁻⁶	10 ⁻⁷	10 ⁻⁸	10 ⁻⁹	10 ⁻¹⁰
Virus alone	3/3*	3/3	3/3	3/3	3/3	3/3	1/3
Newcastle antiserum (Cornell) + virus	0/3	0/3	0/3	0/3	..	..	..
Newcastle antiserum (BAI) + virus	0/3	1/3	0/3	0/3	..	..	..
Normal serum + virus	3/3	3/3	3/3	3/3	3/3	3/3	0/3
Pooled serum ¹ + virus	1/3	0/3	0/3	0/3	..	..	..
Serum A ² + virus	0/3	0/3	0/3	0/3	..	..	..
Serum B ³ + virus	3/3	1/3	0/3	0/3	..	..	..

*The numerator indicates the number dead; the denominator indicates the number inoculated, in all instances. ¹Serums from 6 convalescent chickens of the investigated flock mixed in equal parts. ²Serum from an individual chicken of the above 6. ³Serum from a second chicken of the above 6.

herr;⁷ Brandly, Moses, and Jungherr;⁸ and Stubbs.⁹

On Sept. 5, 1946, 2 chicks, 5 weeks old, were presented to this laboratory for diagnosis. Both chicks were alive and showed nervous symptoms consisting of torticollis and epileptoid manifestations. Handling the chicks increased the intensity of the latter symptoms. It was ascertained that these chicks were members of an original group of 400. At the age of 2 days, individuals of this lot began to show respiratory symptoms. They gasped for air, sneezed, and discharged a mucous exudate. These symptoms spread to most of the chicks. Nervous symptoms developed about the third week following the onset of the disease and con-

The owner of these diseased chicks was visited two days after their admission to the laboratory. Evidence of respiratory symptoms had almost disappeared in the 5-week-old chicks. There were about 60 showing nervous symptoms, of which 50 recovered within two to three weeks. The disease was beginning to appear in some adult chickens as evidenced by rattling breathing sounds and mucous discharge from the nostrils. There were about 20 adult chickens on the premises. Most of these eventually showed respiratory symptoms; 1 developed nervous symptoms consisting of lateral and downward distortion of the neck; and none died.

The brains and spleens of 3 chicks with nervous symptoms and of 1 adult chicken with respiratory symptoms were removed aseptically. Each one of these eight specimens was crushed in a sterile tube and sufficient broth was added to make a 10 per cent suspension. Three, 10-day-old, embryonated chicken eggs were injected with 0.5 cc. each of the supernatant fluid of each specimen. On the first transfer, 1 embryo, injected with the splenic material of 1 of the chicks, died in about fifty hours. A transfer from the chorioallantoic fluid of this embryo to other chicken embryos produced death within forty-eight hours in 2 out of 3 inoculated. A third transfer produced

The investigation reported in this paper is in connection with a project of the Kentucky Agricultural Experiment Station and is published by permission of the director.

Virologist (Bruner); bacteriologist (Edwards); and associate veterinarian (Doll), Kentucky Agricultural Experiment Station, Lexington.

death in 3 inoculated eggs within about forty-two hours. The remaining seven specimens tested failed to yield virus. All bacteriologic cultures made from inoculum and from dead embryos yielded no growth.

RESULTS

The results obtained in the titration of the virus which was isolated from the chick are shown in table 1. The inoculum consisted of 0.1 cc. in each case. Its titer proved to be 10^{-9} . This table depicts the results of neutralizing this virus with specific Newcastle disease [pneumoencephalitis] antiserum obtained from the Bureau of Animal Industry,* Washington, D. C., with the antiserum obtained from Dr. P. P. Levine at New York State Veterinary College, Ithaca, and with normal chicken serum. Later, serums were obtained from 6 adult chickens which were involved in the above mentioned outbreak and apparently had recovered. Table 1 shows the results of virus neutralization by a pooled sample of these six specimens. Two serums of the six, A and B, also were tested individually and included in table 1. In these tests, serum was mixed with virus in equal amounts and allowed to stand at 20 C. for thirty minutes before inoculation.

CONCLUSIONS

An outbreak of Newcastle disease [pneumoencephalitis] in 400 chicks is described. The virus was isolated from the spleen of 1 of the chicks and identified through neutralization tests with specific antiserum. Serums from recovered chickens associated with the chicks were shown to possess antibodies capable of neutralizing Newcastle disease [pneumoencephalitis] virus.

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Hemorrhagic Septicemia Serum in Calf Scours

Drs. Ray Matkin of Rockport, Mo., and J. D. Shoeman of Atlantic, Iowa (*The Country Gentleman*), reduce heavy losses by preventing hemorrhagic septicemia, calf scours, shipping fever, and pneumonia in feeder cattle by the administration of hemorrhagic septicemia antiserum. Despite its greater cost than bacterins (five times more), the serum is their agent of choice. In addition, the sick are given sulfonamides.

Bacitracin

The antibiotic, bacitracin, is named in honor of Margaret Tracy, a 7-year-old girl suffering from a compound fracture, from whose wound a bacillus yielding the antibacterial filtrate was isolated. The bacillus is an aerobic, spore-forming, gram-positive organism which was obtained from the debrided tissue of the patient. The filtrate was used on 100 patients after having been tested in crude form in laboratory animals. Subcutaneously, it protected mice with 10,000 m.l.d. of hemolytic streptococci, showing its diffusion through the body. Locally, it was found also to have abortive action against the forming of furuncles and carbuncles in human tissues. Bacitracin is not claimed to be superior to penicillin or the sulfonamides, but it is thought to be a hopeful adjunct where these fail. Its ability to diffuse, as was shown in mice, is of interest in veterinary medicine judging from the comprehensive report published in the *Journal of the American Medical Association*.—Frank L. Meleny, M.D., and Balbina Johnson, M.D.: *Bacitracin Therapy. J. Am. Med. A.*, 133, (March 8, 1947): 675-680.

"Water Bloom" as a Cause of Poisoning in Livestock in North Dakota

T. O. BRANDENBURG, D.V.M., and FRED M. SHIGLEY, D.V.M.

Bismarck, North Dakota

THE CONDITION known as "water bloom" probably has occurred on North Dakota lakes in the past, but no specific cases of livestock losses from such causes have been reported.

During the latter part of July, 1946, owners of livestock pasturing near upper Des Lacs Lake had losses in cattle drinking from this lake. Nervous symptoms developed fifteen to twenty minutes after drinking; death occurred in one to four hours in fatal cases. Losses varied from 1 to as high as 22 head, depending on how quickly the owner removed the cattle or substituted other drinking water for the lake water.

Stockmen in this area have been using these pastures and allowing cattle to drink from the lake for a number of years but have never before had losses of this kind.

This area had been drier than usual and winds had blown from one direction for from three to four days at a time. This, undoubtedly had much to do with the losses, as water bloom, driven by the prevailing winds accumulated on opposite shores and became diffused through the water to such an extent that animals were forced to drink large quantities of the poisoned algae. From Minnesota, with its 10,000 lakes, come most of our recorded losses from water bloom.

As early as 1882, Porter¹ reported losses from water bloom. Fitch, Bishop, and Boyd² report extensive losses from it during 1933 among livestock pastured near certain lakes in Minnesota. Francis,³ in 1878, reported losses on Lake Alexandria in South Australia, and his description exactly fits the condition found on Des Lacs Lake in North Dakota. He states:

A conferva that is indigenous and confined to the lakes has been produced in excessive quantities, so much as to render the water unwholesome.

It is, I believe, *Nodularia spumigena* allied to protococcus. Being very light, it floats on

the water except during breezes, when it becomes diffused. Thus floating, it is wafted to the lee shores, and forming a thick scum like green oil paint, some 2 to 6 inches thick, and as thick and pasty as porridge, it is swallowed by cattle when drinking, especially such as suck their drink at the surface like horses. This acts poisonously, and rapidly causes death; symptoms—stupor and unconsciousness, falling and remaining quiet, as if asleep, unless touched, when convulsions come on, with head and neck drawn back by rigid spasm, which subsides before death. Time—sheep, from one to six or eight hours; horses, eight to twenty-four hours; dogs, four to five hours; pigs, three to four hours.

Howard and Berry⁴ report losses on Fraser Lake, Ontario, in 1924.

Certain conditions found in the North Dakota losses differ from those already reported. Three or 4 cattle that became sick and did not die showed a severe photosensitization manifested by a blistering of the skin of all white haired portions of the body with extensive skin sloughing. Two healthy, old hens used as test birds died slowly even when mammoth doses were injected intraperitoneally, the time being from sixty to ninety minutes. The symptoms noticed in a hen experimentally fed and also in 1 injected intraperitoneally were similar to those described by Fitch and Boyd in pigeons except that no regurgitation was noted. The symptoms produced in about ten minutes after feeding were restlessness, blinking of eyes, and repeated swallowing with upward jerking of the head. There was frequent defecation in the bird fed the material as well as the ones injected intraperitoneally. Both of the birds which succumbed died following clonic spasms.

Des Lacs Lake is a U. S. Fish and Wildlife Reserve and the many deer living in this locality drink from the lake. A number of deer were found dead near the shore at about the time the cattle losses occurred. Wild water fowl could easily be killed by drinking a small amount of the poisonous algae-contaminated water, but it is un-

State veterinarian (Brandenburg); and U. S. Bureau of Animal Industry (Shigley); Bismarck, N. Dak.

likely that this caused much loss among water fowl since these birds can easily swim out and drink clear water.

There must be considerable variation in the amount of toxin in water bloom in various stages of its growth and later decomposition. It was unfortunate that the water bloom specimens we tested were taken from the lake about two weeks after the cattle losses occurred.

Samples of the contaminated water were forwarded to the U. S. Bureau of Animal Industry, Washington, D. C., for identification of the algae. They reported that the specimens arrived so badly decomposed that identification was impossible. It was noticed at the time the specimens were collected that they had a foul, offensive odor, when collected in large amounts near the shore, and had become encrusted on the surface. It is believed that some difficulty would have occurred in collecting suitable material for identification on account of the decomposition already present.

Owners watering their stock in lakes during July and August should be on guard if prevailing winds concentrate water bloom on the lake shore where the cattle must drink.

This investigation was made to exclude the possibility of anthrax in the herds. It occurs most often in pastured animals near lakes or marshes in North Dakota during the summer months.

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²Fitch, Bishop, and Boyd: "Water Bloom" as a Cause of Poisoning in Domestic Animals. Cornell Vet., 24, (1929): 30-38.

³Francis, George: Poisonous Australian Lake. Nature, 18, (1878): 11.

⁴Howard and Berry: Algal Nuisances in Surface Waters. Canad. Pub. Health J., 24, (1933): 377.

Coagulant Action of Penicillin.—Amorphous penicillin of every brand tested in 200 experiments accelerated clotting time in fifteen to sixty minutes, however administered, even with a stomach tube. The effects lasted for several hours. Dicumarol administered orally countered the effect. Comparable thromboplastic action was obtained from streptomycin.—D. I. Macht: *Thromboplastic Properties of Penicillin and Streptomycin*. Science, 105, (March 21, 1947): 313-314.

The Screw-Worm Fly, *Cochliomyia Americana*, in Ohio

The primary screw-worm fly, *Cochliomyia americana*, is common in many parts of the southern and southwestern states and has been reported from Indiana, Illinois, and Iowa, but as far as I know there have been no cases reported from Ohio. This report is given to list a few cases recently found in this state.

On Sept. 22, 1946, Dr. Vernon L. Tharp, of the Ambulatory Clinic Staff, The Ohio State University, brought to our laboratory specimens of fly larvae taken from the anterior part of the foot and between the claws of a cow. Examination proved them to be *C. americana*, the screw-worm larvae.^{1, 2, 3} On September 24, Dr. Tharp brought several larvae from a puncture wound in the side of a yearling heifer. Examination showed them to be *C. americana*. These larvae were put in a jar partly filled with sand and, within a few days, adult flies emerged. Specimens of fly larvae from a puncture wound in the ear of a boar, collected on September 29, were also identified as the same parasite. All of these larvae were taken from native Ohio animals. There had been no importation of feeder cattle or animals from other parts of the country on these farms. Dr. Tharp treated several other similar wound-infected cases in the area, but did not bring these larvae for examination. All of these cases were within a radius of 15 mi. from Columbus.

On November 2, Dr. J. H. Binnig, Minerva, Ohio, sent in several suspected screw-worm larvae which he had found in the top of the neck of a native, purebred Holstein-Friesian heifer. Examination of these showed them to be larvae of *C. americana*.—F. R. Koutz, D.V.M., M.Sc., The Ohio State University, Columbus.

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³Biology of the Primary Screwworm Fly, *Cochliomyia americana*, and Comparison of Its Stages with Those of *Cochliomyia macellaria*. U.S.D.A. Bull., 500, (1936): 24.

Avitaminosis in poultry is often secondary to parasitism.

A Survey of Some Scandinavian Toxicologic Observations

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FREQUENTLY, it is assumed that sudden or unexpected disease or death in domestic animals is occasioned by an obscure poison, even if it is obvious to the trained veterinarian that the trouble is not an intoxication in the strict sense of the word. Quacks often use intoxication as a diagnosis if their treatment fails. The qualified veterinarian's ambition is to diagnose intoxication only when founded upon clinical evidence and/or postmortem findings and when it is possible to demonstrate the poison.

Table 1 lists a number of substances which have caused intoxications in Scandinavian domestic animals in recent years. The monetary loss occasioned by accidental poisonings may be great.

ZINC POISONING

There were 46 cases of zinc poisoning, 44 in domestic animals and 2 others. As the tissues of domestic animals normally contain zinc, diagnosis demands an exact quantitative analysis (O. Grini¹). This report on chronic zinc intoxication is valuable to veterinarians since it is the first such case in domestic animals. The animal developed diarrhea, eventually hemorrhagic, within a few days after consumption of the poison. The purgation became sluggish and dark in the course of some few days. At the same time, posterior weakness was accompanied with stiff and unsteady gait. Later, the pulse became labored. Death occurred, in some cases, without appearance of striking symptoms. On section, gross degenerative changes of kidney, liver, and heart muscles, transudates in the abdominal cavity, and edema of striated musculature were found. Chronic zinc poisoning may last for three weeks.

A peculiar type of zinc poisoning occasioned by inhalation of zinc vapors was reported by A. Johansson² and E. Hoffmann.³

In domestic animals, only a few cases of

zinc poisoning have been described. In man, on the contrary, intoxication due to inhalation of zinc vapors is well known. In these cases, the main symptoms are a transient, febrile state combined with respiratory difficulties. These symptoms are occasioned by absorption of the zinc vapors into the epithelial cells lining the alveoli of the lungs, causing precipitation of albumen which, when absorbed, results in shock.

Both cases of poisoning due to inhalation of zinc vapors occurred in barns in which welding was being done. A total of 20 cows were toxic. In both cases, the symptoms reported were transient fever, labored pulse, respiration frequent and labored, coughing, subcutaneous emphysema on breast and neck, and auscultatory symptoms indicative of interstitial emphysema of the lungs. The autopsy revealed corresponding gross lesions.

As these symptoms harmonize with those occurring in man suffering from inhalation of zinc fumes, A. Johansson² assayed the effect of zinc vapors experimentally inhaled by cattle. He proved that, in the course of some few minutes, inhalation of zinc vapors occasioned symptoms identical with those noted in spontaneously intoxicated animals. The experiments also revealed that the symptoms became aggravated, when the intervals between the inhalation were so short that the injuries occasioned by the first had not been repaired before reëxposure.

The fact that pregnant animals are especially disposed to intoxication with zinc vapors is explained by E. Hoffmann³ on the basis of deeper inhalation in open than in pregnant cows. The respiratory areas, being smaller, are more quickly inactivated, functionally, in pregnant cows than in dry ones.

Treatment of this type of intoxication consists of effective ventilation of the barn after which recovery occurs in a few days.

ARSENIC POISONINGS

Since 1935, there has been a striking increase of arsenic poisonings in Swedish animals (H. Wanntorp⁴). The reason is an

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TABLE I—Recent Toxicologic Observations in Scandinavian Countries

Poison	Author(s)	H.	C.	S.	Number and kind of animals					Pn.	Others
					P.	G.	D.	Cat	F.		
Zinc	O. Grini ¹		23		18				33		
	A. Johansson ²		12								
	E. Hoffmann ³		8								
	H. Wanntorp ⁴		1								2
Thallium	M. Christensen & H. C. Momberg-Jørgensen ⁵				18						
	C. C. Kinslev ⁷							7			
	H. Wanntorp ⁴							3			
Arsenic	H. Wanntorp ⁴		32			13					
	H. Wanntorp ⁵		52								
Mercury	Fr. Harblitz ⁸		23								
	O. Lauridsen ⁹		4		17						
	H. Wanntorp ⁴		5								
Lead	H. Wanntorp ⁴		32								
Copper	H. Wanntorp ⁴		2						80		
Sodium chloride	H. Wanntorp ⁴				2						2
Chlorate	H. Wanntorp ⁴		9								
Salt peter	H. Wanntorp ⁴		5								
Phosphorus	H. Wanntorp ⁴		Numerous		Numerous				Numerous		
Fluorine	H. Wanntorp ⁴		1		Numerous	4	6		Numerous	Numerous	
Strychnine	H. Wanntorp ⁴						14		25		
Naphthalene	H. Wanntorp ⁴								4		
Acetic acid	A. Johansson ¹²	6									
Carbon tetrachloride	B. Voss ¹¹		1								
Carbon monoxide	H. Wanntorp ⁴							1	29		
Frangula	N. Södermark ¹³		1								
Bulbus Scilla	H. Wanntorp ⁴						2		Numerous		
	M. Christensen & H. C. Momberg-Jørgensen ⁵				20						
Mould	S. Rubbarth & T. Henricson ¹⁵	8									
	Johs. Elsness ¹⁴		4								

H.=horse. C.=cattle. S.=sheep. P.=pig. G.=goat. D.=dog. F.=fowl. Pn.=pigeon.

increasing use of wood impregnated with arsenic.

In most cases, cows showed symptoms of intoxication after licking poles impregnated with arsenic. H. Wanntorp⁵ showed experimentally that from 2 sq. meters of surface of impregnated poles, a rainfall of 22 mm. had extracted an average of 3 Gm. of arsenic. No differences occurred in poles protected against rain, even from poles coated with sublimated arsenic salt. The results show that wood impregnated with arsenic is by no means harmless, even if the arsenical compounds did not form a superficial coating.

THALLIUM POISONINGS

These occurred in 25 animals. Due to increasing use of thallium in eradicating rats, Christiansen and Momberg-Jorgensen⁶ have assayed its noxious effect on 18 pigs, weighing from 6.75 to 40.5 kg. The animals received thallium dissolved in water and then mixed with milk. The dose of thallium varied from 10 to 50 mg./kg. The test showed that the lethal dose of thallium in pigs varies from 15 to 25 mg./kg. Due to the cumulative effect of thallium, repeated administration of sublethal amounts can occasion grave chronic intoxications or even death, provided the interval between subtoxic doses is not too long.

As nothing has been published about the effect of thallium, the clinical and post-mortem findings published by Christiansen and Momberg-Jorgensen will be reported briefly.

The symptoms varied with the size of the dose. One large, surely lethal dose given in the course of twenty-four to forty-eight hours reduced the appetite and caused dullness and weakness. Diarrhea was variable. If it occurred early in the disease, the purgation was thin, yellowish, and watery, sometimes tinged with blood. Vomiting occurred in some pigs. Convulsions and other nervous symptoms were never noted. The intoxication ran an acute course. Before death, coma developed. By administration of lesser but still toxic doses, the symptoms developed in the course of several days.

In chronic intoxications, a variable number of these symptoms appeared but peculiar changes occurred, especially in the skin of the loin. They were characterized by hyperemia and moist, greasy surfaces frequently brownish in color.

On section, acute cases showed changes characteristic of acute inflammation in the mucous membrane of the stomach and superficial erosions coated by either a thin, greyish, or a thick, croupous, membrane. The small intestine

showed changes characteristic of acute inflammation; the colon and cecum those of croupous diphtheritic inflammation. The content of the digestive tract was thin and yellowish. Further degenerative changes of the liver, flaccid heart and, eventually, small, subendocardial hemorrhages could be noted.

C. C. Kinslev⁷ reported 7 cases of thallium poisoning in dogs. Symptoms, course of the intoxication, and postmortem changes corresponded to those known from earlier publications. Treatment of the intoxication was ineffective when instituted some days after the consumption of the poison, but, if instituted immediately after consumption, treatment with tannin combined with chalk seemed efficient.

MERCURIAL POISONINGS

Poisoning occasioned by inhalation of mercurial vapors is rare. For this reason, the observation of Fr. Harbitz⁸ regarding an intoxication of 23 cows poisoned by mercurial vapors from an ointment containing mercury is important. Even though the symptoms noted did not differ from those described as characteristic of mercurial poisoning, it must be pointed out that, at first, this intoxication was believed to be foot-and-mouth disease. Lauridsen⁹ calls attention to a hitherto unnoticed symptom of mercurial poisoning—abortion in pregnant cattle.

CHLORAL HYDRATE

The use of chloral hydrate may give rise to intoxications even if it is, as reported by Nesse and Buer,¹⁰ free of noxious contaminations. As chloral hydrate was mixed with sodium carbonate in the mixture used, Nesse and Bugge believed that a cleavage of chloral hydrate formed toxic compounds. Therefore Nesse and Buer warn against treatment of cattle with mixtures containing both chloral hydrate and sodium carbonate.

CARBON TETRACHLORIDE POISONINGS

This drug is used as an anthelmintic in animals. Caution must be used, however, since the individual tolerance of cattle varies greatly. Well-fed, older animals are most susceptible to the toxicity of carbon tetrachloride, but Voss¹¹ says young animals may be intoxicated even by small doses. He reported a case of intoxication in a 1½-year-old heifer treated with only 30 Gm. of carbon tetrachloride. In twenty-

four hours, a general paresis developed ending with death. On section, a sparse amount of serohemorrhagic liquid was found in the peritoneal cavity, as well as stasis of the liver, edematous gall bladder, acute inflammation of the duodenum, submucous, epi- and endocardial hemorrhages.

ACETIC ACID POISONINGS

Only a few cases of intoxications occasioned by acetic acid have been reported in animals. Acetic acid is generally used as rectal lavage against oxyuris in horses. Such a treatment may be noxious, however, as was noted by Johansson,¹² who found 6 horses intoxicated after each had been treated with 15 liters of a 2.5 per cent solution of acetic acid as an enema. Subsequent to treatment, the horses showed colic, tremor, foaming purgation, hyperemic and icteric conjunctivitis, and albuminuria. On section, necrotic ulcerous colitis and thrombosis of the blood vessels into adjacent tissue were found. The effect of acetic acid was tested on rabbits by administration of enemas of 0.5 to 5.0 per cent solutions. The effect depended upon the concentration of the drug, the filling of the rectum, and time of the effect. Weak solutions showed a more noxious effect than did more concentrated ones, because the vigorous tenesmus occasioned by concentrated solutions caused quick expulsion of the liquid. In rabbits, the following symptoms occurred: tenesmus, coprostasis, postmortem changes in the terminal part of the colon, with extensive necroses and inflammations.

RHAMUS CATHARTICA POISONING

This drug may intoxicate animals as was seen by Södermarks¹³ in a cow which had consumed a large amount of leaf and twigs of the plant. The cow suddenly became ill, showed diarrhea, vomiting, labored pulse, and slight fever, and died in the course of two hours. On section, there was found acute gastroenteritis, and a large amount of *Rhamus frangula* in the stomach.

SCILLA MARITIMA

It is generally believed that this plant is noxious to pigs. Christiansen and Momberg-Jørgensen⁶ experimentally tested the susceptibility of 20 swine, weighing from 12 to 60 kg., to the toxicity of the supposed poison. The results obtained show that,

even when the animals had not been fed for twenty-four hours, they refused feed containing the poison in amounts varying from 1,000 to 3,333 mg./kg. Symptoms appeared if the poison was administered in amounts corresponding to 4,545 and 6,140 mg./kg. body weight. For that reason, it was concluded that spontaneous cases of this intoxication are rarities in swine.

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Is Penicillin Expensive?

Although the initial cost of treating mastitis with penicillin is high, Packer points out (*Successful Farming*, Nov., 1946) that other factors favor its use. For example, following injection of some drugs, the milk may not be used for human food for seven to ten days, whereas with penicillin only one or two milkings pass before the milk is again normal. Then, too, penicillin has no irritating effect on the udder. And the clinching argument is that the percentage of cows recovering is higher with penicillin than with any other drug in his experience.

NUTRITION

The Prophylactic Administration of Vitamins to Dairy Calves

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THE INABILITY to cull dairy calves on a genetic basis because of high calthood mortality during the first few weeks of life has increasingly concerned the breeders of dairy cattle. Vitamin feeding gave such promising results^{2,4} with scours, subsequent pneumonia, and navel ill with a small number of calves that it seemed desirable to set up a controlled experiment under practical, herd-management conditions of the university herd where calf losses were significant. Since starting this work in November, 1942, other work, including that at Cornell³ and the Ohio and Michigan state institution herds, indicates that no significant effect was obtained from feeding some combination of vitamins A, D, E, thiamin chloride, riboflavin, calcium pantothenate, pyridoxine, choline chloride, and niacin, or of vitamins A, C, and D. While the results of the present experiment are not essentially different from those at Cornell, they are reported because of differences in the experimental plan including breeds, vitamins, and amounts, frequency of feeding vitamins, and system of management.

EXPERIMENTAL METHODS

Alternate calves in each of four groups born in the dairy herd between November, 1942, to November, 1945, were placed in the experimental group, the others serving as controls. The four groups represented the Guernsey, Holstein-Friesian, Jersey, and grade experimental herds. In addition to the usual management received by the control group, the

experimental group from the beginning until February, 1943, received capsules of the following vitamin composition on the day of birth and on the third, fifth, seventh, ninth, fourteenth, nineteenth, twenty-fourth, twenty-ninth, and thirty-fourth days of postnatal life: 17,000 U.S.P. units vitamin A; 7 mg. thiamin chloride; 7 mg. riboflavin; 30 mg. pantothenic acid; 35 mg. choline; 70 mg. niacin. In February, 1943, after 17 calves had been started on the experiment, 350 mg. ascorbic acid was added and the feeding continued until Dec. 19, 1944. Capsules of the same composition were used through the ten feedings, although it was realized that ascorbic acid is destroyed by the rumen when it develops into functional activity at approximately two weeks. The management plan, until December, 1944, consisted of leaving the calf with the dam for three days, followed by feedings, twice daily, of mixed herd, whole milk for two weeks, gradually changing to skim milk. This was continued for five months for Jerseys and six months for Holstein-Friesians and Guernseys. The calves were fed a grain mixture of corn, barley, and beet pulp containing 7.6 per cent digestible protein. They were kept in individual pens until the thirty-fourth day, at which time they were placed in pens of 3 or 4 calves. Alfalfa hay of varying quality was fed. The calves were weighed at birth and at 34 days, 4 months, and 6 months of age. In December, 1944, four changes were made in the procedure. The calves were removed from the dams at birth, or as soon after as possible. All calves were muzzled for the first two weeks and fed three times daily until 34 days old. The vitamin capsules for the treated group were changed to a commercial product* containing 5,000 U.S.P. units vitamin A, 500 U.S.P. units vitamin D (irradiated ergosterol), 50 mg. niacin, and 250 mg. ascorbic acid. The criterion used in measuring the value of the vitamins was the incidence of calf scours and calf pneumonia during the first six months. After the experiment had progressed, body weight also was used. Most of the calves were born during the winter months. The cow herd had access to limited pasture from the first of June to the last of September and to alfalfa hay throughout the year. Most of the hay fed

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*Supplied by Gelatin Products Company, Detroit, Mich.

would be grade U.S. No. 2, with a smaller amount grading U.S. No. 1. The quality of the hay reflected the weather conditions and haying methods used in this area and, therefore, probably was typical of the alfalfa used by dairymen throughout the state during the study.

TABLE 1—The Effect of Vitamin Administration on the Incidence of Scours and Pneumonia in Calves

Group	No. calves	Incidence of scours		Incidence of pneumonia	
		No.	%	No.	%
Control	76	28	50.0	11	14.5
Experimental (Vitamin supplement)	83	40	48.2	12	14.5

Calf diarrhea occurred in calves from about 3 days to 3 weeks of age, with most of the calves becoming ill during the second week of life. The diagnosis of scours was based on the following symptomatology: Fluid, light gray to light yellow feces occasionally were pasty gray and voluminous in amount. Later fecal passages consisted of little more than water and, in severe cases, contained traces of blood and shreds of sloughed mucosal tissue. The body temperature rarely exceeded 103.2 F. and commonly was 102.4 to 102.6 F. The outstanding characteristic was a marked dehydration. A few calves showed clinical evidence of an illness considered as an acute, generalized bacterial infection.

Care was taken to eliminate from the above category all cases of so-called "feed scours" or physiologic diarrhea, such as those arising from eating too much grain or green alfalfa hay. These calves showed some emaciation with little or no dehydration, loose but not fluid

efficacy of the vitamin supplements can be given only in terms of the incidence of these diseases in the two groups of animals and not in terms of mortality.

The mortality figures are included in this report to illustrate any possible effects of the prophylactic administration of vitamins on the response to the sulfonamide therapy employed in treating the sick animals.

The therapeutic measures used in treating the sick calves in both the control and experimental groups were: sulfaguanidine, sulfasuxidine, and sulfadiazine for the common cases of calf scours; sulfadiazine for those cases with clinical evidence of a generalized infection; and sulfathiazole, sulfapyridine, and sulfadiazine for calf pneumonia.

RESULTS

During the three-year period from November, 1942, to November, 1945, a total of 159 calves were studied. Of this number, 76 calves were involved in the control group and 83 calves in the experimental or vitamin supplement group. The numbers are not equal because some of the breed groups both started and ended with a calf in the experimental lot, and several controls were removed for purposes other than this experiment.

The numbers of animals involved for the different breeds were too small to indicate any difference between the control and experimental animals and, therefore, were combined. A summary of the results of the study is given in table 1.

TABLE 2—The Effect of Vitamin Administration on the Response to Sulfonamide Therapy of Scours and Pneumonia in Calves

Group	Incidence of scours			Incidence of pneumonia		
	No. cases	No. deaths	% deaths	No. cases	No. deaths	% deaths
Control	38	11	29.0	11	2	18.2
Experimental (Vitamin supplement)	40	17	42.5	12	4	33.3

feces, which were usually dark, an abnormal appetite, and normal temperature. This condition was managed successfully by close control of the ration. Such cases were not tabulated as cases of calf scours.

The symptoms which provided the basis for the diagnosis of calf pneumonia were: rapid and labored respiration, a temperature of 104 to 106 F., cough, a rapid pulse, positive auscultatory sounds, lack of appetite and loss of condition, eye and nasal discharge and, occasionally, pulmonary edema.

As the experimental conditions of this study necessitated the saving of as many calves as possible, the same therapeutic measures were instituted in both the control and experimental groups as soon as any of the calves developed scours or pneumonia. For this reason, the

The incidence of scours and pneumonia in the two groups suggests that the vitamin supplement was of no value in reducing the incidence of these diseases under the system of management and feeding in the dairy herd used for the study.

All calves of either the control or experimental groups that became ill were placed on sulfonamide therapy. The mortality data shown in table 2 is presented to indicate the effects of the vitamin supplement on the response to the therapeutic measures used.

The higher mortality values found for the experimental group might suggest that

the administration of the vitamins interfered with the sulfonamide therapy; however, the numbers of animals involved are too small to place any significance on these differences between the control and experimental groups.

During the period body weights were taken, 68 calves survived the first six months. No difference between the two vitamin regimes could be detected, so all the weights summarized by breed are given in table 3.

DISCUSSION

The results of the prophylactic administration of vitamins, as indicated under the herd management conditions described, do not show any practical difference when compared with the control group. This holds for incidence of scours and pneumonia and gain in body weight. The statistical treatment of the body weight data shows that, if there is a difference in this criterion of evaluation, the number of calves included was too small to show it. The calves in this

TABLE 3—Effect of Vitamin Prophylaxis on Body Weight

Breed	Group	No.	Body weight (pounds)			
			Birth	34 days	4 mo.	6 mo.
Guernsey	Treated	8	64.12	77.75	151.50	236.00
	Control	8	62.50	75.12	144.88	225.88
Holstein-Friesian	Treated	18	99.17	113.28	242.61	335.39
	Control	15	93.73	111.27	232.47	324.13
Jersey	Treated	10	50.40	70.60	163.30	251.30
	Control	9	48.55	64.44	161.44	255.22
Total calves	Treated	36				
	Control	32				

Because of the differences in birth weight, even though alternate calves at birth were placed in the experimental and control groups, these differences and those at each of the other three weight periods were treated statistically† according to

TABLE 4—Analysis of Variance of Interbreed and Intertreatment Means

Source of variation	Sum of squares	DF	Mean squares	F
Total	37,662.4	67		
Between treatment means	179.3	1	179.3	1.33
Between breed means	28,735.0	2	14,367.5	106.55**
Interaction	387.5	2	193.7	
Error	8,360.6	62	134.8	

** = Highly significant.

methods outlined by Snedecor.⁶ The differences in weight gains the first thirty-four days in Holstein-Friesian's were similarly treated. The analysis of variance of interbreed and intertreatment means was also determined for the weight at the thirty-fourth day (table 4). The value of F is too low (1.33) to indicate significant difference in the weight at 34 days of age between those receiving vitamins and the control group.

†Grateful acknowledgement is made to W. C. Waite and H. W. Halvorson, Division of Agricultural Economics, University of Minnesota, for their interest and help on the statistical analysis.

experiment received whole milk for a shorter period than those reported by the Cornell workers and thus might be assumed to have received less vitamin A from their milk. No difference was detected between the calves receiving the two different vitamin supplements.

When the weights of the calves in the different purebred groups were compared with the Ragsdale standards,⁵ the Guernsey's were similar at birth and at 34 days of age but were smaller at 4 and at 6 months. The Holstein-Friesian's were practically the same during the first three weighing periods. At 6 months of age, however, they were heavier when compared by groups with the Ragsdale standard by 20 and 31 lb., respectively, for the treated and the controls. The Jersey's started out smaller but were heavier than the standard at 6 months. It is doubtful if the difference at either end of the experimental period is significant, although the difference in weight gain may be.

When compared with the calves reared in the same herd at an earlier date,¹ the Guernsey's showed approximately the same difference when compared with Ragsdale's standard. The Holstein-Friesian's were smaller at all weights except at birth, and the Jersey's were about the same.

Close observations did not show any differences in general thriftiness or coat that

was associated with differences in the experiment.

SUMMARY AND CONCLUSIONS

In a controlled experiment over a three-year period involving 159 dairy calves, no significant differences were observed between the controls and those fed either of two combinations of vitamins. These results are in agreement with those of a similar nature recently reported.

The criteria of judgment were incidence of scours and pneumonia, body weight, and general appearance.

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Hybrid vs. Open-Pollinated Corn

Ackerson, Ham, and Mussehl (*Nebraska Agric. Exper. Sta. Bull.* 144, 1946) checked hybrid corn against open-pollinated corn on two groups of growing chicks, all other parts of the ration being the same. The corn was fed in pellets in identical amounts. Consumption was about the same by both groups. At the end of six weeks, the growth rate was found to be in favor of open-pollinated corn. The relative nutritive value of the two types awaits trials on a larger scale and in other farm animals.

Riboflavin *alias* **Lactoflavin**, **Lactochrome**, **Vitamin G**, **Vitamin B₂**.—Although it was not until 1932 that riboflavin (vitamin B₂) was given biological importance, it was identified as a constant ingredient of milk in 1879 when an observant chemist (A. W. Blyth) described it as a yellowish green pigment and named it *lactochrome*. In European literature, this fraction is generally called lactoflavin, ovaflavin, or hepatoflavin, depending on its source. It is widely distributed in animal and plant life but the richest source is in anaerobic fer-

mentation bacteria, milk, eggs, kidney, heart, liver, fish liver, and in combination with the protein of red meat. It is famous for being abundantly synthesized by bacteria, fungi, molds, and higher plants. Its deficiency is famous for stopping growth.—*Reference: Vitamins*, by H. R. Rosenberg, Interscience Publishers, Inc., New York.

Thyroid Function in Poultry Nutrition

The internal secretion of the thyroid gland (thyroxine) in poultry has been receiving critical attention by endocrinologists and nutritionists and, hence, by producers of commercial flocks because the thyroid function is more responsive to experimental modifications. More than twenty years ago, the feeding of thyroid substances to old hens (5 to 8 years old) was found to have a remarkable rejuvenescent effect. The plumage brightened, comb and wattles reddened, and egg production increased.

The work of Reineke and Turner of the Missouri Agricultural Experiment Station in 1942 aroused renewed interest in the thyroid by experiments with iodinated protein which yielded definite information on egg production, weight, and mortality through successive generations. Thereafter, hypothyroidism and hyperthyroidism in poultry brought the thyroid function into the foreground in veterinary literature.

The predominant protein of bovine colostrum is immune lactoglobulin.

Nutrition of the ruminant is closely related to the presence of bacteria in the rumen.

Eight to twelve weeks is the recommended age for vaccination against fowl pox.

Good range for poultry will reduce feed costs and will grow stronger, healthier pullets by reducing exposure to diseases and parasites.

Prevention of Calf Scours.—Several dairymen have been able to prevent calf scours by feeding only milk, alfalfa, and timothy hay, according to *Hoard's Dairyman* (Apr., 10, 1947). The condition of calves on this ration, compared with those started early on grain, was just as good, if not better.

EDITORIAL

Cincinnati in Veterinary History

Seventeen eighty-eight—Nineteen forty-seven

Had Sinclair Lewis written "Main Street" in 1820 instead of a hundred years later, Cincinnati, not Gopher Prairie, might have provided the inspiration, for, then and there was America's first main street "west of the mountains."

When St. Louis was but a way station, Chicago a military blockhouse, and Detroit a shaky army post, Cincinnati was already an up-and-coming industrial center and livestock market. It was founded as a trading post in 1788, just after the War of Independence and, during the first half of the nineteenth century, proudly took on the character of a buzzing metropolis.

ten years before Dr. Henry Corby located in St. Louis in 1859. It was also the first city outside of the Atlantic seaboard to be chosen as a meeting place for the national association.* The American Veterinary Association, founded at Philadelphia in 1854, whose name was later changed to the United States Veterinary Medical Association and, finally, to the American Veterinary Medical Association in 1898, held its annual session in the Ohio River metropolis Sept. 16, 1884, against strong opposition. The attendance was small but the results great. The moot question of holding a meeting beyond the Alleghenies had been



Cincinnati, Ohio
in 1810

—From an old print, 1875

In the annals of American veterinary medicine, Cincinnati is of record as the first locale "out west" to permanently support a formally educated veterinarian—John C. Meyer (Sr.), Vienna '46, pioneer authority on glanders and the new disease, hog cholera; he located there in 1849, developed a sizable clientèle and rendered yeoman service to the Quartermaster General of the Union Army during the Civil War. That is to say, Cincinnati, with its stockyards, packing houses, and horse and tobacco markets, had a capable veterinarian

so hotly contested at the semiannual meeting held in Boston on March 18 that choosing a meeting place was left to the Comitia Minora (Executive Board). Cincinnati won by a narrow margin but the decision was not announced until August, barely a month before the meeting was to take place. The September (1884) issue of the American

*The livestock holdings of the United States at the time of the Cincinnati meeting in 1884 were, in round numbers, 10,820,000 horses, 1,871,000 mules, 13,125,000 dairy cows, 28,000,000 beef cattle, 49,237,000 sheep, and 43,270,000 hogs, representing a value of \$2,338,000,000.

Veterinary Review stated a few days before the meeting: "If the organization is well managed we shall probably be able to record a grand meeting." In the October issue, the editor, commenting (not without sarcasm) on the Cincinnati adventure, declared: "The few who were present have returned with the satisfaction of having had a good meeting. . . . Our western friends did not turn out in as goodly numbers as was expected by some." Speaking for Chicago only, veterinarians prominent in that city had not been notified that the meeting was to be held in Cincinnati.

It will always remain to the credit of eastern veterinarians that they had the vision to hold the 1884 meeting in Cincinnati and also to back the scattered meetings of the following years in the Middlewest: Chicago, 1890 and 1893; Des Moines, 1895; Nashville, 1897; Minneapolis, 1902. In short, the Cincinnati meeting sixty-three years ago charted the course American veterinary medicine was to take—is taking. A gathering of the nation's veterinarians there in 1884 was a memorable event. It showed a determination to serve the people of a rapidly growing country, the present food-producing center for all mankind. It prevented organized veterinary medicine from disastrous disunity.

The 1884 meeting is also on record as having taken the first step toward adopt-

ing a uniform entrance requirement for veterinary students. The resolution, introduced by W. Horace Hoskins, provided for the appointment of a committee "to determine the willingness of the colleges to adopt a mutual standard" in that respect.

From the standpoint of attendance and general interest, the Cincinnati meeting of 1947 promises to rival all other meetings, but the one of 1884, sixty-three years ago, will still be the one most celebrated.

The circulation of American technical journals in the U.S.S.R. is greater than in any other foreign country.—*From a release of the American Institute of Physics, January 17.*

The World's Poultry Science Association has announced that the Eighth World's Poultry Congress will be held in Denmark in July or August, 1948. Inquiries should be addressed to Dr. C. F. Heuser, Cornell University, Ithaca, N. Y.

"It is encouraging when professional men believe strongly enough in their work to contribute financially to its progress," says an editorial in *National Livestock Producer*. Have YOU contributed to the AVMA Research Fund about which they were speaking?



Aerial view of downtown Cincinnati and the Ohio River, 1947.

The Student Exchange Program in Veterinary Medicine

The Institute of International Education, through its Clearing House on Student Interchange, has recently issued a comprehensive list of students from South American and Latin American countries who are enrolled, for graduate study principally, in U. S. colleges and universities for the academic year 1946-47. The list is divided to cover four areas: South America-South (Argentina, Bolivia, Chile, Paraguay, Uruguay); South America-North (Brazil, Colombia, Ecuador, Peru, Venezuela); Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama); and the Caribbean area (Cuba, Dominican Republic, Haiti, Mexico).

Out of a total of 4,342 such students from these countries, 11 are enrolled either at accredited veterinary colleges or in veterinary science departments at land-grant colleges. The distribution of students follows:

Brazil.—1 (University of Pennsylvania).

Colombia.—1 (Utah State Agricultural College).

Haiti.—1 (Iowa State College).

Panama.—3 (Iowa State College).

Peru.—2 (Colorado A. & M. College).

Venezuela.—3 (1 each at Michigan State College, University of Missouri, and University of Pennsylvania).

The Institute of International Education, headed by Dr. Stephen Duggan who founded the organization in 1919 and has been its director since that time, was born of the first World War out of a realization that the United States had remained isolated from the currents of international events during much of the nineteenth and early twentieth centuries because its citizens had concentrated on the development of their new country and, so, had remained unfamiliar with the life, institutions, culture, and problems of other peoples.

From the beginning, the purpose of the Institute has been to promote international cultural relations, particularly through student and professional exchanges, as a means toward world peace. Following World War II, it appears certain that the Institute will experience its greatest development. From the first, it has been a private organization, supported largely with funds provided by the Carnegie Corporation although, during World War II,

the federal government provided about two-fifths of its operating budget because the Institute performed many services for the government, requiring a considerably increased staff and administrative costs.

Student exchanges are operated through a system of fellowships and scholarships, granted by American colleges and universities to students from certain foreign countries and in return for which the governments, ministries of education, and institutions of learning in those countries have offered like grants to United States students. Most of the awards are for graduate study. The fellowships in most cases cover board, room, and tuition, while the students bear the cost of their own travel and incidental expenses. In some cases, an additional cash stipend is granted to an exchange student.

Although the present number of exchange veterinary students under this program is small, it is anticipated that the number will grow considerably under the long-range program which the Institute is developing with professional organizations. With this in mind, the Institute has invited the American Veterinary Medical Association to designate a representative to help conduct these relationships in order that foreign student programs in veterinary medicine may be made as effective as possible from the professional point of view.

ISOLATE THE NEW ANIMAL



MANY LIVESTOCK DISEASES ARE
SPREAD BY CARRIER ANIMALS.

—Associated Serum Producers

CURRENT LITERATURE

ABSTRACTS

Contagious Agalactia in Sheep and Goats

This is an acute, infectious disease caused by a virus which localizes in the udder, the eye, and the joints. The virus has an affinity for tissues of ectoderm origin, and may be classed as a neurotropic ectodermosis.

Zavagli's study traces the disease from the transitory, and often subfebrile, rise in temperature, through the characteristic lesions in the udder, the eye, and the joints, and on into the conditions caused by secondary invaders. These complications are enteritis, bronchitis, and pneumonia. The virus lives in the blood stream of sheep for only twelve to twenty-four hours but is present in the milk constantly after the first day of infection. The lesions caused by the virus are constant, but those caused by the secondary invaders are highly variable.

A color chart demonstrates the various stages of the ocular lesion. — [V. Zavagli: *Experimental Researches in the Contagious Agalactia of Sheep and Goats*. Zoöproflassi, I, (July, Aug., Sept., 1946).]

A. ASCOLI

Artificial Insemination in Cattle

Artificial insemination is an old procedure and was applied to horses and dogs for many years in various countries. Russia was the first country to undertake artificial insemination on a wide scale. Since 1919, the program has grown so rapidly in Russia that, in 1940, more than one million mares, 30 million ewes, and 25 million cows were inseminated artificially. About 20 per cent of the cattle in Denmark are bred by this method. Semen is collected in an artificial vagina of rubber which is surrounded by a rubber jacket containing water at 40 to 42 C. To prevent sudden changes in temperature, the collection should be done indoors. The appearance of the semen is dependent on the concentration of sperm. When deficient in numbers, it will be watery in appearance, but at a concentration of about 800,000 sperm per cubic millimeter it will be whitish. Microscopic examination is made to determine the numbers of sperm, their motility, and morphology. The methods for staining are described. The semen is diluted four to eight times in a glucose-phosphate solution, depending on the number of cows to be inseminated. The mixture is then slowly cooled to 8 to 10 C. The insemination is done by placing the left hand in the rectum to serve as a guide to the glass pipette which is inserted to the internal os. The semen is deposited along the cervical canal by the use of a syringe attached to the pipette as the latter is withdrawn. Successful

artificial insemination results from the use of normal sperm in a healthy cow with normal organs. It must be done at the proper period in the estrual cycle. Great care must be exercised to insure cleanliness at all times. The selection of the bull is of paramount importance. The male must not only be able to produce adequate amounts of good quality semen, but it is important that he transmit desirable characteristics to his offspring. It may require six years to thus prove a sire. The most successful application of artificial insemination is by means of an organization under the direction of a veterinarian. — [Nils Lagerlof: *Artificial Insemination in Cattle*. *Finsk Vet. tidskr.*, 51, (1945): 41-61.]

A. G. KARLSON

Plasma Cell Myeloma in a Dog

A dog presented for euthanasia, because of pain and an increasing lameness during eighteen months, showed a painful enlargement of the upper third of the left humerus. The limb was held in a position characteristic of radial paralysis.

At the autopsy, the bone structure of the upper two thirds of the shaft and the upper extremity of the affected bone was expanded. The periosteum was irregularly thickened, and the adjacent muscles were edematous with occasional small hemorrhagic areas. The cortex was thinned and the affected bone cut easily. The upper two thirds of the marrow cavity had been replaced with soft, reddish grey tissue which contained small foci of necrosis and some fibrous trabeculae.

Microscopic sections showed the tumor cells to be round, oval, or polyhedral. The nucleus was spherical or oval and some were located centrally, others eccentrically. The tumor cells occurred in large compact masses, in loose arrangements, and singly.

This is the first report of a myeloma of the plasma cell type in animals and is the only one seen in a group of 300 neoplasms from dogs studied by the author.—[Frank Bloom: *Intramedullary Plasma Cell Myeloma Occurring Spontaneously in a Dog*. *Cancer Research*, 6, (Dec., 1946): 718.]

Metal Fragments in Horses Located with X-ray

The author had under his care a large number of horses that had been wounded as much as six months previously. In many instances, it was difficult to determine the depth of the wound and the location of a foreign object, if any. The presence of old fistulas, draining

sinuses, and scars made the use of sounds unsatisfactory. Four cases are described and illustrated with x-rays showing the location of metal fragments. It was found to be of assistance to place sounds in the fistula or sinuses and make x-ray plates with the sounds in place. Several films should be made of the suspected area from different angles.—[G. Ohman: *The Demonstration of Grenade Fragments by Use of X-Ray*. (In Swedish). *Finsk Vet-tidskr.*, 51, (1945): 113-121.]

A. G. KARLSON

BCG Vaccine Improved

This "vaccine of the future" (*Am. Rev. Soviet Med.*, Feb., 1946) which is already employed for mass vaccination against human tuberculosis has been improved in respect to its perishability and facility of production by lyophilization, making it in dry form. For use in far-away places lacking qualified personnel, loss of vitality was a hindrance. Dried in 50 per cent glucose solution and stored at room temperatures for sixteen months, the growth of the bacilli was equal to that in liquid vaccine two months old. Dry glucose vaccine, a year and a half old, and tested on animals, differed but little in immunizing value from fresh liquid vaccine. Experiments on the drying of BCG have been conducted by the Central Institute of Experimental Medicine, U.S.S.R., since 1937.—*Public Health Report*, Feb. 7, 1947.

Deficiency Diseases of Swine

Deficiency diseases of swine are common in southwestern Finland. The author describes a disease of swine that occurs immediately after, or within several days of, parturition. There was loss of appetite, constipation, posterior paralysis or lameness, and hyperesthesia. Death occurred within a week. The postmortem findings were not characteristic. There was pulmonary edema and sometimes pneumonia. The liver was enlarged, tore easily, and was a grayish or yellow-brown. The kidneys were swollen and grayish or yellowish. Bacteriologic examination revealed nothing. No type of therapy, hormone, vitamin, or the use of calcium salts gave encouraging results. The author believes this to be a mineral deficiency disease.—[K. Korpela: *Deficiency Diseases of Swine*. (In Finnish, German summary), *Finsk. Vet.-tidskr.*, 51, (1945): 85-89.]

A. G. KARLSON

Dairying in Quebec

The industrial history of dairying is traced from the hunter who recovered milk from the kill to the dairy industry of today and the commerce which has developed from manufacture of dairy products.

A nationwide plan is outlined for developing the industry from centers of instruction, for quality products from producer to consumer, and for insuring the use of healthy cows main-

tained under sanitary conditions and afforded the benefits of veterinary service.

Written for publication in Spain, the article calls attention to the fact that approximately one third of the cattle of the good producing European herds are infected with mastitis, and that a loss of one fourth in milk production may be attributed to such infection.—[Jose Maria Rosell, chief bacteriologist, emeritus, Faculty of Agriculture, University of Montreal, and of the School of Dairy Industry in the Ministry of Agriculture, Province of Quebec: *Lactologia Contemporanea. Productos Animales*, (Oct., 1946): 49-98.]

H. E. MULLEN

Obstetrics in Swine

Atony of the uterus, abnormal positions of the fetus, and narrowness of the pelvis are the most common causes of dystocia in swine. The author uses sterilized motor oil as a lubricant for the birth canal. In cases of uterine atony, the author uses pituitrin. Sometimes uterine contractions may start after several fetuses have been removed by traction. If the pelvis is too narrow to permit passage of a fetus, one must resort to cesarean section which is generally successful.—[V. Sarva: *Obstetrics in Swine*. (In Finnish, German summary). *Finsk Vet.-tidskr.*, 51, (1945): 71-80.]

A. G. KARLSON

BOOKS AND REPORTS

Fleas

Following a short chapter on the medical importance of fleas, and biographical sketches of the students of western fleas along with the accomplishments of each student, the author presents a systematic classification of more than 230 species and subspecies of fleas in 66 genera, all collected west of the one hundredth meridian. When compared with the 55 species in 33 genera which have been classified east of this meridian, the author concludes that "the west is indeed a flea collector's paradise."

Drawings, identifying portions of the fleas, are meticulously accurate, showing even the minor differences by which the several species can be recognized.—[*Fleas of Western North America*. By C. Andresen Hubbard. 533 pages. Cloth. Profusely illustrated. 1947. The Iowa State College Press, Ames. Price \$6.00.]

North Dakota Livestock Sanitary Board

The thirty-ninth and the fortieth annual reports to the governor by the North Dakota Livestock Sanitary Board cover the years 1945 and 1946. Among the cattle diseases, coccidiosis was the important killer in 1945, with blackleg a fairly close second. In the following year, blackleg remained almost as severe, but coccidiosis losses fell to about 7.5 per cent of the 1945 figure. Hog cholera was the cause of greatest swine losses in both years.

"This period can be added to the golden age for livestock people in North Dakota," the

report says, because there was "plenty of grass and feed of all kinds and excellent prices."

Attention is called to the fact that while scab in sheep has been controlled for forty years, mange in hogs is "increasing alarmingly in some sections."—[*Thirty-ninth and Fortieth Annual Reports of the North Dakota Livestock Sanitary Board, Years 1945 and 1946. By T. O. Brandenburg, executive officer and state veterinarian, Bismarck.*]

"Hutyra and Marek"

The comprehensive encyclopedia of general infections and certain groups of organic diseases of domestic animals for which American veterinarians have long felt deeply indebted to Alexander Eger, Inc., Chicago veterinary book publisher, comes out again labeled "Fifth English Edition," or, more strictly speaking, with the interjection of such new material as the upset world has permitted. Editor J. Russell Greig's preface dated June, 1946, stresses the deterrents that overtook the Hungarian, British, and American authors responsible for keeping the voluminous contents as up-to-date as was humanly possible.

To the cautious reviewer, the omissions are casualties of the war. If such sensational discoveries and uses of certain insecticides, antibiotics, and bacteriostatics which came rushing upon the practice of medicine are not found in their proper place, the reason is self-evident. The authors' treatment of Ramon's tetanus toxoid does not do justice to the clinical results in man and animals since the last edition was published. "Strain 19," officially approved in 1940, is not mentioned, as such. But, the thesis on equine encephalomyelitis in the United States and Canada, reviewing the observations and researches of the American authors, and the present conception of leptospirosis in dogs, cited as examples, are among the many redeeming revisions. Neither criticisms nor panegyrics can change the place "Hutyra and Marek" occupies in the veterinarian's professional life in America. Its rating as a masterpiece stands immovable. Each revision is a record of the advance made in the pathology and therapeutics of the domestic animal kingdom. Historically speaking, these tomes recall Germany's invasion of American veterinary medicine when, in 1895, Zuill's translation of Friedberger and Frohner's *Pathology and Therapeutics of Domestic Animals* came rushing in and permanently superseded the "English classics," only to be dislodged by Hungarian authors and collaborators.

Although consistency of usage ranges above the average, the title itself is not above criticism. Quite long at best, it contains four redundant words—"special," and "of the diseases"—taking the definitions of "pathology" and "therapeutics" at their par value. As to whether these are "special," the text speaks for itself. In the preface, "veterinary medicine" and "comparative pathology" are made proper nouns and so is "leishmaniasis," although spelled with a small "l" in the text matter, and "a" replaces the "o"—leishmaniasis. While there is no quarrel about the "o" in theileriosis,

bartonellosis, *et al.*, translated into English these words are spelled with "ia," and all of them are used as common nouns in medical literature, including the one honoring Dr. Leishman of kala-azar fame. Inasmuch as this work is now edited abroad, no fault can be found in the use of diphthongs which have been discarded in American medical writing (tumour, labour, foetid, foetus, diarrhoea, aetiology). The issues of 1916 and 1922 spelled them "diarrhea" and "etiology." This type of criticism resides only in the present attempt to establish consistent usage in the language of veterinary medicine, and there can be no better place to point out that inconsistent habits do exist than to scan "Hutyra and Marek," our reference treatise *par excellence*.—[*Special Pathology and Therapeutics of the Diseases of Domestic Animals. By Dr. J. Marek and Dr. Rudolph Manninger, Budapest. Edited by Prof. J. Russell Greig, Edinburgh, with the collaboration of Dr. John R. Mohler and Dr. Adolph Eichhorn, U.S.A. 3 volumes, I, II, and III, 962, 704, and 762 pages, respectively. Alexander Eger, Inc., 63 E. Adams Street, Chicago. Printed in Great Britain. Price \$50.00.*]

Veterinary Bacteriology

Written as a textbook for students in veterinary medicine, the information is presented in four parts. Part one deals with the general biology of microorganisms, their morphology, growth characteristics, and physiology. The history of bacteriology is reviewed along with the methods and techniques of culturing, staining, differentiating, and sterilizing. A chapter on the antibiotic agents traces the history of this development and lists the prominent members of the group.

Part two, which deals with infection, resistance, and immunity, is the portion which will be of greatest interest to practitioners. It discusses the mechanism of infection and the principles of immunity in general terms and then applies these principles specifically to the toxin-antitoxin phenomenon, agglutination, precipitation, cytolysis, phagocytosis, anaphylaxis, and the allergic reactions.

Parts three and four discuss the bacteria, yeasts, molds, and filterable viruses pathogenic to animals. Each organism rates its own chapter, and the student learns the synonyms, distribution, modes of transmission, cultural methods and the manner of growth, staining and morphologic characteristics, pathogenicity and the resistance to sterilization, the antigenic structure, and toxin-producing ability upon which the immune response is based. In fact, it carries each infective agent through all of the procedure of making a laboratory diagnosis.

Well written, well illustrated, and well printed, it is a worthy addition to the library of every veterinarian, whether interested only in knowing what a laboratory can do to help him reach the correct diagnosis, or in actually following the procedures himself.—[*Veterinary Bacteriology. By I. A. Merchant. 633 pages, 137 illustrations. Cloth. Iowa State College Press, Ames. 1946. Price \$7.00.*]

THE NEWS

AVMA Eighty-fourth Annual Session

Dates—August 18-21, 1947

Place—Cincinnati

In the July issue of the JOURNAL, which will be the Convention Number, the preliminary program for the Cincinnati meeting in August will be published, together with the President's Message and information concerning all regular and special features of the convention.

The deadline for hotel reservations is August 1. Make all requests for reservations through Dr. S. G. Stephan, chairman of the Committee on Hotels and Housing. A hotel reservation blank, addressed to Dr. Stephan, is published on page xxxv of this issue for your use.



The Cincinnati Zoo.

Additional Schedule of State Association Broadcasts

(See page 193, March, 1947, JOURNAL for additional stations)

State	Station	Location	Day of Week	Time	Name of Program
Maine	MBC	Portland	?	6:30 a. m.	Farm Program
N. Car.	WHKP	Hendersonville	Every Monday	12:45 p. m.	Farm Hour
Utah	KVNU	Logan	Tuesday	7:00 a. m.	Inter-Mountain Farm Journal

The following New York stations are broadcasting the radio programs: WGY—Schenectady, WKIP—Poughkeepsie, WJZ—New York City, WNBC—New York City.

Proposed Amendments to Constitution and Administrative By-Laws

At the 1946 meeting of the House of Representatives, action was deferred on one proposal which had been submitted at the 1945 business session. It had to do with integration of membership in the AVMA and its constituent associations. This proposal, plus two others which were submitted last year, will come up for final action at the Cincinnati session of the House; they are being published again for the information of delegates and other members, together with some additional proposals, and will be re-published in the May and June JOURNALS.

PROPOSAL NO. 1

[The purpose of this proposal is to integrate membership in constituent associations (state, provincial, territorial, and other veterinary associations affiliated with the AVMA) with AVMA membership. If this purpose is to be effected, several changes are necessary in the Constitution and Administrative By-Laws. The proposal submitted at the 1945 business session and considered at the 1946 meeting has been revised to meet objections and clarify questions raised last year in the House of Representatives (see the JOURNAL, October, 1946, pp. 310-313). The words in italics are the suggested revisions.]

Since the proposal as revised would affect the Constitution, it only can be submitted at the 1947 session and action taken one year thereafter.]

1) Amend Article III, Paragraph (b) of the Constitution to read:

"General Membership.—The general membership, otherwise known as the active membership, shall consist of (1) graduates of veterinary colleges approved by the Association who are members of their respective constituent associations and who have been duly elected in the manner hereinafter provided, and (2) associate members who have been duly elected as provided in paragraph (c) of this article; *provided, that the requirement of this paragraph with respect to membership in a constituent association shall not take effect until said constituent association shall have accepted the plan of integrated membership with the American Veterinary Medical Association by adopting the same qualifications for membership as prescribed in the by-laws and, provided further, that the requirement shall not then be retroactive but shall apply only to new applicants.*

"c. Associate Membership.—The associate membership shall consist of veterinarians duly elected in the manner provided by the by-laws who live in countries outside of the United States and the Dominion of Canada, and who are otherwise eligible but do not or could not hold membership in a constituent association."

Present paragraph (c) would become (d), and present paragraph (d) would become (e).

2) Amend Article IV, Section 1 of the Constitution to read:

"State, territorial, and provincial veterinary associations of North America, The National Association of Federal Veterinarians, and the official association of veterinarians of the United States Army which have or may hereafter become organized in conformity with the general plan of the American Veterinary Medical Association, and which have adopted the same qualifications for membership, shall be recognized upon application as constituent associations provided such application is approved by a majority vote of the Executive Board."

3) Amend Article X, Section 2(a) of the By-Laws as follows:

Drop the last sentence and replace with: "The application shall contain the certificate of the secretary of the constituent association that the applicant is a member in good standing of that body. *In the case of an application for associate membership, it shall contain the endorsement of two members who know the applicant, one or preferably both of whom shall live in the same country as the applicant.*

"The American Veterinary Medical Association reserves the right to reject the application of any member of any constituent association."

4) Add a new paragraph (b) to Section 3, Article X as follows:

"Members who have been dropped from constituent associations shall be dropped from the American Veterinary Medical Association on official notification by the secretary of the constituent association and shall be reinstated in the same manner. Whenever a member of this Association is dropped for any reason, the secretary of the constituent association in which he holds membership shall be notified promptly."

5) Replace Section 4 of Article X with the following:

"Section 4. The applications of candidates for associate membership shall be submitted to the Executive Board and shall be accepted or rejected by that body at any regular or special meeting. Associate members shall have all of the rights and privileges and be subjected to the same obligations as other active members except only that they are not required to maintain membership in a constituent association."

Present Section 4 would then become Section 5, and present Section 5 would become Section 6.

6) Amend Section 5 by making subparagraph (a) a part of re-numbered Section 5 and changing it to read as follows:

"Junior members who have maintained good standing in their respective junior chapters for three years prior to graduation may apply for membership at time of graduation without payment of the membership fee of \$5.00, provided their applications are endorsed by two members of the Association, and provided further that their continued membership is contingent upon their joining a constituent association within one year after graduation."

PROPOSAL No. 2

[The purpose of this proposal is to clarify the method of appointment of councils and committees so that this may be done by the Executive Board or other governing bodies of the Association, if desired. This proposal, and Proposal No. 3 below, were submitted to the House of Representatives at the 1946 session and will be in order for final action at the 1947 meeting.]

Amend the first part of Article XII—"Committees—Standing and Special" so that it will read as follows:

Article XII

Councils and Committees

"Section 1.—The councils and standing committees of the Association shall be those named below. Except as otherwise provided, the incoming president shall select and appoint the personnel of these councils and committees, in such numbers and for such terms as hereinafter specified. The selection of personnel for the ensuing year shall be made so that announcement of appointments and the rosters of councils and committees can be made in the proceedings (October) issue of the JOURNAL next following the annual meeting."

Section 2.—Special Committees: Transpose the present paragraph on special committees at the end of this article to this position.

Section 3.—This is to be the present second paragraph of Section 1, the first sentence of which is to be changed to read: "The annual report of the councils, standing and special committees," etc.

PROPOSAL No. 3

If the foregoing proposal is adopted, then subparagraph (c) of Section 3 of Article II should be amended to read:

"(c) except as hereinafter provided, he shall appoint all regular and special committees and shall promptly fill vacancies in the membership of committees created by any cause;"

PROPOSAL No. 4

[The purpose of this proposal is to include the Research Council and the Board of Trustees of the Research Fund in the organization set-up of the Association the same as are standing committees and the Council on Education. Since the proposed amendment is to the by-laws, and does not affect the corporate officers except to make some of them members of the Board of Trustees of the Research Fund, the publication of the proposal in this and two subsequent issues of the JOURNAL will permit final action to be taken at the 1947 meeting.]

Amend Article XII of the Administrative By-Laws by adding the following:

12. RESEARCH COUNCIL

"a) *Personnel*.—The Research Council shall consist of fifteen members representing the following fields: anatomy and histology; bacteriology (immunology and biologic therapy); biochemistry and animal nutrition; large animal medicine; large animal surgery; parasitology; pathology; physiology and pharmacology; poultry pathology; small animal medi-

cine; small animal surgery; veterinary hygiene; virus diseases; x-ray; and a member-at-large. The members shall be appointed for three-year terms and the appointments so made that the terms of five members shall expire each year.

"b) *Method of Appointment*.—Appointments to the council shall be made by the Board of Governors and the executive secretary, subject to the approval of the Executive Board and confirmation by the House of Representatives.

"c) *Duties*.—The council shall develop plans and projects, based on the establishment of fellowships with any funds that may be provided, for the purpose of encouraging post-graduate study by veterinary graduates and developing more and better qualified veterinary investigators and faculty material. The council shall also serve as a board of review to pass upon all manuscripts submitted for publication in the American Journal of Veterinary Research.

"The Research Council shall select its own officers and formulate its own rules of procedure; it shall also adopt such regulations regarding fellowships and fellowship stipends as may be necessary and appropriate, subject to approval of these regulations by the Executive Board. It shall render a full report annually to the Executive Board and House of Representatives."

13. BOARD OF TRUSTEES—RESEARCH FUND

"a) *Personnel*.—The Board of Trustees of the Research Fund shall consist of the following officers of the Association: president, president-elect, chairman of the Executive Board; treasurer; and executive secretary. These trustees shall be named by their offices and be succeeded from time to time as their successors are elected.

"b) *Duties*.—The Board of Trustees shall establish and organize a trust fund for the purpose of encouraging graduate study by veterinary students; developing more well-qualified research workers and teachers in the field of veterinary science; stimulating interest in, and adequate financial support of, veterinary research problems; offering the services of the Research Council in the correlation of veterinary research; and for the benefit of the public generally in furthering science and research in science, and aiding and informing the public in the care and health of domestic animals and pet animals, including their relationship to human health.

"The Board shall administer all monies collected for the American Veterinary Medical Association Research Fund and perform all necessary duties in connection therewith. It shall render a full report annually to the Executive Board and House of Representatives."

PROPOSAL No. 5

Submitted by the Special Committee on Parasitology for the purpose of establishing a standing committee on parasitology.

12. COMMITTEE ON PARASITOLOGY

"a) *Personnel*.—This committee shall con-

sist of five members, one of these to be appointed for a term of five years. The first members shall be appointed for terms of one, two, three, four, and five years, respectively. The members of this committee shall be veterinarians and they shall represent, so far as possible and practicable, the various phases of the subject of veterinary parasitology, namely, research, teaching, field work, etc. So far as possible, the membership shall also represent the various geographical areas of the United States and Canada.

b) *Duties.*—It shall be the duty of this committee to report annually on the prevalence and importance of the parasites and parasitic diseases affecting animals and on the available means of combating these parasites and parasitic diseases."

Cash Prize Added to Humane Act Award

Beginning with this year, the winner of the AVMA Humane Act Award will receive a \$100 U. S. Savings Bond in addition to the certificate customarily presented.

The decision to offer this cash prize was made with a view to stimulating wider interest in the project. Dr. W. A. Young, *chairman* of the Humane Act Award Committee, has sent a special letter to humane societies, advising them of the cash prize, and a release on this subject has been circulated to newspapers. The closing date for entries has been extended to June 15.

Any boy or girl under 18 years of age who has performed "an outstanding act of kindness to animals" is eligible for the award, which will be announced at the Association's annual meeting in Cincinnati. Veterinarians are urged to make nominations.

AVMA Exhibit at Centennial Session of the American Medical Association

Following an invitation from the Scientific Exhibits Committee of the American Medical Association, the AVMA has developed an exhibit for the hundredth anniversary session of the former association in Atlantic City, June 9-13, 1947. The subject selected for demonstration is swine erysipelas (*Erysipelothrix rhusiopathiae*). The exhibit will include a colored map showing the distribution of swine erysipelas in the United States, especially the areas in which it is either a serious or relatively important problem, also its important areas of distribution in foreign countries; a portrayal by photographs, color drawings, and preserved specimens of the pathological effects of the infection, particularly in swine, and something of its effects in other domestic animals and in man; and a graphic presentation of control methods, including demonstration of the rapid agglutination plate test for diagnostic use.

The exhibit will be on display in booth No. 1220 in the Scientific Exhibits which will be located on the main floor of the Atlantic City Auditorium.

The exhibit has been constructed so that it can be crated for shipment to several other national or regional meetings of related organizations, including the AVMA convention

in Cincinnati in August, the American Public Health Association in Atlantic City in October, and the Southern Veterinary Medical Association in New Orleans, November 17-19.

The special committee appointed by President Simms to plan and develop the exhibit included Drs. J. S. Bengston, L. A. Dykstra, J. V. Lacroix, W. A. Young, J. G. Hardenbergh, and R. C. Klussendorf. Materials for the exhibit were furnished by Dr. L. Van Es, University of Nebraska, and the Bureau of Animal Industry, Washington, D. C.

The Next International Veterinary Congress, 1949?

On Apr. 5, 1947, a meeting was held in the office of Dr. B. T. Simms, chief of the Bureau of Animal Industry and president of the American Veterinary Medical Association, to tentatively discuss the next meeting of the International Veterinary Congress. In attendance at the meeting, in addition to Dr. Simms, were Sir Daniel Cabot, chief veterinary officer of the British Ministry of Agriculture and Fisheries, London; Prof. G. Flückiger, chief federal veterinarian, Bern, Switzerland, and president of the International Office of Epizootics; Dr. P. J. Du Toit, director of the Veterinary Services, Onderstepoort, South Africa; Dr. John R. Mohler, former chief of the Bureau of Animal Industry and vice-president of the permanent committee of the International Veterinary Congress; Dr. Charles A. Mitchell, chief animal pathologist, Hull, Quebec; and Dr. H. W. Schoening, chief of the Pathological Division, Bureau of Animal Industry.

The discussions on April 5 were of a tentative nature and were designed to get an expression of opinion from representatives of several countries on the desirability of holding an early international meeting. It was the consensus that such a meeting should be held as soon as practicable. Dr. Mohler, Professor Flückiger, and others reviewed the status of countries where the Congress might be held and, after a general discussion, it was agreed that Switzerland would be the logical country in which to hold such a meeting. Professor Flückiger stated that Switzerland was willing to organize the Congress if it was the wish of all concerned. In discussing the probable date, it was felt that the earliest possible time would probably be in the summer of 1949. Further discussion on the organization of the International Veterinary Congress will take place in Paris in May of this year with other officials of the permanent committee, and it is expected that definite action will be taken at that time and proper announcements made.

The foreign visitors in attendance at the meeting of April 5 were in Washington in connection with a meeting of the Subcommittee on Animal Health of the Food and Agriculture Organization, March 31 to April 4.

s/H. W. SCHOENING.

England purchased over 35 million lb. of dried whole eggs from the United States during the first three months of 1947.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

BINNS, WAYNE

Veterinary Science Dept., Utah State Agricultural College, Logan, Utah.

D.V.M., Iowa State College, 1938.

Vouchers: J. E. Rasmussen and M. L. Miner.

BISHOP, GEORGE C.

Provincial Agricultural Laboratory, Charlottetown, P.E.I., Can.

D.V.M., Ontario Veterinary College, 1939.

Vouchers: R. Gwatkin and C. A. Mitchell.

BONNELL, AUGUSTS O.

626 Broadway, Room 626, Cincinnati 2, Ohio.

D.V.M., Cincinnati Veterinary College, 1914.

Vouchers: J. H. Batsche and C. A. Pleuger.

FLEENER, TRUMAN B.

5915 E. 11th St., Tulsa, Okla.

D.V.M., Kansas State College, 1940.

Vouchers: C. E. Hofmann and D. F. Swartz.

GARLIE, ADOLPH O.

812 College Ave., Northfield, Minn.

D.V.M., Iowa State College, 1934.

Vouchers: H. C. H. Kernkamp and W. L. Boyd.

GRIFFIN, CHARLES J.

500 E. High St., Springfield, Ohio.

D.V.M., Ohio State University, 1913.

Vouchers: W. W. Enderle and W. H. Pavey.

HORNADAY, WAYNE A., JR.

Box 402, Greensboro, N. Car.

V.M.D., University of Pennsylvania, 1943.

Vouchers: P. C. McLain and W. H. Kern.

MCLEAN, JOHN E.

30 Argyle St., Halifax, N. S., Can.

D.V.M., Ontario Veterinary College, 1932.

Vouchers: A. T. McLean and E. E. I. Hancock.

MCCULLOUGH, J. WALTER

425 McCosh St., Hanover, Pa.

V.M.D., University of Pennsylvania, 1923.

Vouchers: H. R. Becker and R. C. Snyder.

MARRIOTT, WILLIAM H.

2 Hartington Pl., Ottawa, Ont., Can.

V.S., Ontario Veterinary College, 1907.

Vouchers: O. Hall and F. Parmiter.

O'DONNELL, MICHAEL J.

2110 Alum Rock Ave., San Jose, Calif.

D.V.M., San Francisco Veterinary College, 1916.

Vouchers: D. E. Madsen and W. D. Gordon.

RUSSELL, HEBER C.

2948 Magnolia Ave., Berkeley 5, Calif.

D.V.M., Chicago Veterinary College, 1916.

Vouchers: G. P. Rebold and J. M. Arburua.

SMITH, HARRY S.

8 Chenango St., Montrose, Pa.

B.V.Sc., Ontario Veterinary College, 1926.

Vouchers: D. LaGrange and J. B. Reidy.

SPARKS, QUINTON W.

Box 86, Sully, Iowa.

V.M.D., University of Pennsylvania, 1931.

Vouchers: J. Patterson and J. H. Krichel.

TAYLOR, GILBERT L.

2114 Ave. A, Kearney, Neb.

D.V.M., Ohio State University, 1916.

Vouchers: J. D. Ray and A. C. Drach.

VERSLUIS, HENDRIK

U.S.A.C., Branch Veterinary Laboratory, Box 592, Provo, Utah.

D.V.M., Cornell University, 1935.

Vouchers: M. L. Miner and J. E. Rasmussen.

WILTON, GRAHAM S.

Alberta Dept. of Agriculture, Terrace Bldg., Edmonton, Alberta, Can.

D.V.M., Ontario Veterinary College, 1944.

Vouchers: P. R. Talbot and R. Walton.

WISEMAN, ORVILLE G.

15717 Brewster Rd., East Cleveland, Ohio.

D.V.M., Ohio State University, 1924.

Vouchers: H. E. Myers and H. E. Jensen.

Second Listing

Alfson, George R., Post Rd., S. Norwalk, Conn.

Atkins, Robert C., 317 N. Main, Galena, Ill.

Belding, William A., 3380 Cedar Rd., Lansing 15, Mich.

Burris, Kenneth K., 507 N. Washington St., Greenfield, Ohio.

Carclay, Basil, 17337 St. Marys, Detroit 19, Mich.

Cherry, Donald R., 1184 Wellington St., Ottawa, Ont., Can.

Clark, Thomas W., Middletown, Md.

Classick, Harold J., Belmont, Iowa.

Cole, Edward L., 40 Prospect St., Pawtucket, R. I.

Cooke, Gaylord K., 1922 Yosemite Rd., Berkeley, Calif.

Cruz A., Mariano, Avenida Simeon Cansas No. 23 A, Guatemala City, Guatemala, C. A.

Dawson, John C., 708 S. Olive St., Jefferson, Iowa.

Dermody, John M., Carroll, Iowa.

Echegaray-Echeandia, Rafael, Box 93, Lares, P. R.

Estrada, Emilio, Avenida Bolivar, 21-324, Guatemala City, Guatemala, C. A.

Frazer, Lloyd A., 3901 70th St., Des Moines 10, Iowa.

Fry, Charles R., 512 S. 18th St., Centerville, Iowa.

Garman, Ralph A., Tomah, Wis.

Hagan, Jean R., 159 Homer Ave., Cortland, N. Y.

Harrison, John H., Box 295, 17 Allen Rd., Edgewood, Md.

Hoch, Charles I., R.D. 4, Naamans Rd., Wilmington, Del.

Kipp, Elmer B., 918 Pitman Ave., Collingdale, Pa.

Kirkpatrick, Robert J., 1235 N. Henderson, Galesburg, Ill.

Lukens, William L., 211 W. Main St., Hillsboro, Ohio.

McArdle, Dermod, 720 Valencia St., San Francisco 10, Calif.

McCarty, Gailard T., 14437 Michigan Ave., Dearborn, Mich.

Martinez M., Fernando, Apartado Postal No. 30, Atlitico, Pue., Mexico.

Meyers, Bernard C., 8 Cortland St., Norwalk, Ohio.

Moeller, Joseph G., 6049 Colter Ave., Cincinnati 30, Ohio.

Norberto-Macedo, Jose, Instituto de Biologia Animal, Avenida Maracana 222, Rio de Janeiro, Brazil, S. A.
 Ortiz M., Romero, Criaden Miliker de Ganado No. 2, Hda. Sta. Gertrudis, Chilmalma, Chile.
 Redman, Ward D., Box 233, Burlington, Iowa.
 Retos, George, R. D. No. 1, Monongahela, Pa.
 Rodas C., Francisco R., 5a. Avenida Norte No. 9 Jocotenango, Guatemala City, Guatemala, C. A.
 Rothrock, Todd P., Peterson, Iowa.
 Rushton, Frank, 882 Runnymede Rd., Toronto, Ont., Can.
 Sutton, Karl L., 201 North St., Morenci, Mich.
 Villeneuve, J. Paul, 2018 Jeanne-Mance St., No. 4, Montreal 18, Que., Can.

1947 Graduate Applicants First Listing

The following are graduates who have recently received veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Ohio State University

Cragg, Clinton M., D.V.M.
 Stevens Point, Wis.
 Vouchers: W. F. Guard and C. R. Cole.

University of Pennsylvania

Silver, Jules, V.M.D.
 North Franklin, Conn.
 Vouchers: E. A. Churchill and R. L. Berger.

Second Listing

Michigan State College

Borgman, Robert F., D.V.M., 252 Seaside Ave., Bridgeport, Conn.

Ohio State University

Albers, Earl J., D.V.M., 2042 Gartside Ave., Murrphysboro, Ill.
 Amling, Warren E., D.V.M., 1927 Indianola Ave., Columbus, Ohio.
 Bailey, James P., D.V.M., Leatherwood Farms, Bluefield, Va.
 Batchelor, Robert F., D.V.M., Fort Wayne Rd., U. S. 24, Defiance, Ohio.
 Cole, John H., D.V.M., Rt. No. 2, Delaware, Ohio.
 Denhart, Paul, D.V.M., 221 Third St., Findlay, Ohio.
 Elchhorn, Elmer, D.V.M., Clarrington, Ohio.
 Flora, David L., D.V.M., Chalmers, Ind.
 Goroway, A. L., D.V.M., R.F.D. No. 3, Freehold, N. J.
 Hackett, William C., D.V.M., South Charleston, Ohio.
 Hall, Richard L., D.V.M., 75 S. Chappel St., Gowanda, N. Y.

Hannan, Edward C., D.V.M., Maple Park, Ill.
 Hill, Edwin L., D.V.M., 310 Fifth St., Aurora, Ind.
 Householder, Robert T., D.V.M., 13410 Second Ave., East Cleveland, Ohio.
 Light, Richard, D.V.M., New Madison, Ohio.
 Lyday, James M., D.V.M., 65 S. Westmoor Ave., Columbus 4, Ohio.
 Metzger, Frederick K., D.V.M., New Market, Ind.
 Meyer, Roman L., D.V.M., Brunswick, Ohio.
 Montgomery, L. Robert, D.V.M., Casselton, N. Dak.
 Nelkirk, George W., D.V.M., N. Sandusky St., Bucyrus, Ohio.
 Noyes, Loren M., D.V.M., La Center, Ky.
 Ranck, Merrill, D.V.M., 297 E. Beaumont Rd., Columbus, Ohio.
 Montanez-Rivera, Luis A., D.V.M., Box 1891, San Juan, P. R.
 Romig, Paul L., D.V.M., 74 W. Bowery St., Akron, Ohio.
 Schmittle, Samuel C., D.V.M., 2117 Indiana Ave., Columbus, Ohio.
 Sharp, Wayne, 321 W. Spring St., Lima, Ohio.
 Shipman, Nell T., D.V.M., 34 W. Market St., Tiffin, Ohio.
 Ware, Roy M., D.V.M., Rt. No. 5, Sidney, Ohio.
 Zakrzewski, Kazimierz, D.V.M., 17 St. Marks Pl., New York, N. Y.

University of Pennsylvania

Scott, Ralph T., V.M.D., 111 Highland Dr., Kenwood, Chevy Chase, Md.

Second Listing

The following second listings were omitted from the April issue of the JOURNAL and are published this month in order to conform with the requirements of the Constitution and By-Laws.

Bryson, Garland A., 1018 Jacobs St., Shreveport 15, La.
 Franks, K. W., Minden, La.
 Gest, John F., Rt. 2, Loveland, Ohio.
 Howells, Owen, 12 Adams Ave., Ferguson 21, Mo.
 McClelland, Frank E. Jr., 455 Ellicott St., Buffalo 3, N. Y.
 McClelland, Robert B., 455 Ellicott St., Buffalo 3, N. Y.
 Meixel, Earl J., 2806 Soniat St., New Orleans 15, La.
 Miller, S. Glen, 667 Agar St., Oakland, Calif.
 Morrow, Alan, Little Falls, Minn.
 Powers, Cecilia D., Center St., Dover, Mass.
 Solis, Jose A., College of Veterinary Science, University of the Philippines, Pandacan, Manila, Philippines.
 Speer, Willie D. Jr., 538 S. Madison, Tulsa, Okla.
 Stapp, Earl W., 20445 Fenkell, Detroit 23, Mich.

Colorado A. & M. College

Schroeder, Stanley W., D.V.M., Venango, Neb.

Michigan State College

Aronson, Fred, D.V.M., 643 N. Cicero Ave., Chicago, Ill.

Bilby, S. Wayne, D.V.M., Brown's Station, Mo.
Hallett, T. W., D.V.M., 320 Lakeview Drive, Ann Arbor, Mich.

Phillips, Howard C., D.V.M., Winchendon, Mass.
Platt, June H., D.V.M., 513 Albert Ave., East Lansing, Mich.

Raskin, Henry, D.V.M., 20198 Livernois, Detroit, Mich.

Ruck, Charles M., D.V.M., Royal Center, Ind.
Sullivan, Thomas B., D.V.M., 511 Madison Ave., Steubenville, Ohio.

Ontario Veterinary College

Marcus, John F., D.V.M., Kincardine, Ont., Can.

Texas A. & M. College

Benson, William R., D.V.M., 503 South Monroe, San Angelo, Texas.

Brown, Robert D., D.V.M., Rt. 1, Cisco, Texas.
Howells, William V., D.V.M., 12 Adams Ave., Ferguson, Mo.

Jungerman, Paul F., D.V.M., 208 East Church St., Aurora, Mo.

McCollum, Ben B., D.V.M., Box 771, Stephenville, Texas.

Van Nice, Robert W., D.V.M., Toledo, Iowa.

U. S. GOVERNMENT

The Bells Toll for Cavalry and Army Animal Transportation.—The Secretary of War has submitted a bill to the Senate Committee on the Armed Services, authorizing the transfer of the Quartermaster Remount Service to the Department of Agriculture to become effective July 1, 1947. In a letter, the secretary warned that unless the transfer is authorized by the Congress, the horse-breeding program will terminate, as funds for the purpose were not asked for in the estimates of the War Department for 1948. — *From the Army and Navy Journal, May 3, 1947.*

CANADIAN GOVERNMENT

Platinum Type Foxes Disapproved.—The breeding of foxes for platinum pelts and other mutations is not approved by the Fur Grading and Inspection Service of the Department of Agriculture, especially for the small breeder whose objective should be to strive for "standard silvers," and to leave breeding for rare types to the large rancher who can afford to divert vixens for raising mutations. For every platinum fox, there are several off-grade mixtures of low value.

AMONG THE STATES AND PROVINCES

Alabama

Forward Step against Tuberculosis.—In a release from the State Health Department on March 1, the virtual elimination of tuberculous cows has been cited in the campaign against the disease in Alabama. Control of tubercu-

losis in cows has contributed substantially to the health of children in the state. The report states that in 1945 less than 0.001 per cent of 19,796 animals tested were found to be tuberculous. — *S. H. STEELE.*

Arizona

Practice Act Amended.—Legislation passed by the state legislature at its recent regular session and approved by the governor on March 27, 1947, amends Section 67-1903 of the Arizona Code of 1939 relating to the board of veterinary examiners and the licensing of veterinary practitioners. Under the new provisions, applicants, who must be graduates of veterinary colleges recognized by the AVMA, are to be examined by the board within ninety days after filing the required forms; an average of 60 per cent in the various subjects is required. Reciprocity is also provided for veterinary graduates licensed in other states which have requirements not less than those in force in Arizona and provided such states grant equal reciprocity; such an applicant must file a certificate, issued by the board of jurisdiction wherein he last practiced, that applicant was either an active, ethical practitioner of at least two years' experience in veterinary practice other than food or meat inspection, a veterinary inspector of the federal BAI, or a veterinary officer of the Armed Forces of the United States, for a period of at least two years immediately prior to issuance of such certificate. After one year of continuous residence and practice in the state, the holder of a reciprocity certificate is issued a final license. Provision is also made for granting of temporary permits to applicants until the next state board examination is given.

Arkansas

Higher Licensing Standards Sought.—The Arkansas Veterinary Medical Association is seeking legislation to raise standards of veterinary medicine in the state. Veterinary licensure now grants licenses (without examination) to nongraduates in the state who "have no veterinary education other than having been around livestock for varying periods," according to Karr Shannon, in a series of articles in the *Arkansas Democrat* (Little Rock). There are at least 250 such "doctors" now practicing in Arkansas.

Dr. T. D. Hendrickson, *secretary-treasurer* of the Association, Dr. F. O. Garrett, and Dr. C. T. Mason, appearing before a joint legislative committee which is studying educational needs of the state, stressed the influence which the absence of a state veterinary school has on the low standards in existence today. Some recognized veterinary colleges outside the state warn young graduates against starting practice in Arkansas because of these standards.

Dean L. S. Ellis of the College of Agriculture, University of Arkansas, estimated the cost of an adequate school to be between \$1,500,000 and \$2,000,000. The bill proposing the new school was held up for amendment in the Senate because of opposition and reached the House only two days before the end of the session. The legislative committee set up to

study the proposal favored the establishment of a veterinary school before dental or pharmacy schools were added to the University.

S/T. D. HENDRICKSON, *Secretary*.

California

State Association Appoints Fulltime Secretary.—Following the step taken at the winter business meeting in San Luis Obispo, the California State Veterinary Medical Association has employed a fulltime, lay executive secretary to carry on the manifold and increasing functions performed by the state organization. Mr. Charles Travers took over the books, records, and duties on May 1, 1947, from Dr. Floyd H. White of San Rafael, who was the regularly elected secretary. Mr. Travers' address is Room 208, 3004 Sixteenth St., San Francisco.

In order to finance this fulltime activity, the state association increased its annual dues to \$25.00 at the last business session.

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Dr. Haring Dean of New Veterinary School.—The Board of Regents at their March meeting appointed Dr. Clarence M. Haring, professor of veterinary science in the College of Agriculture, University of California, Davis, as the first dean of the School of Veterinary Medicine. Dean Haring, *chairman* of the Department of Veterinary Science for the past thirty-five years, joined the faculty as an instructor in 1904, immediately after receiving his D.V.M. from Cornell University. He became an assistant professor in 1906 and full professor in 1913; from 1920 to 1924, he served as director of the agricultural experiment station.

As a specialist in animal diseases, Dean Haring also served outside the University as director of the California Anti-Hog Cholera Serum Laboratory from 1911-1918; he has been

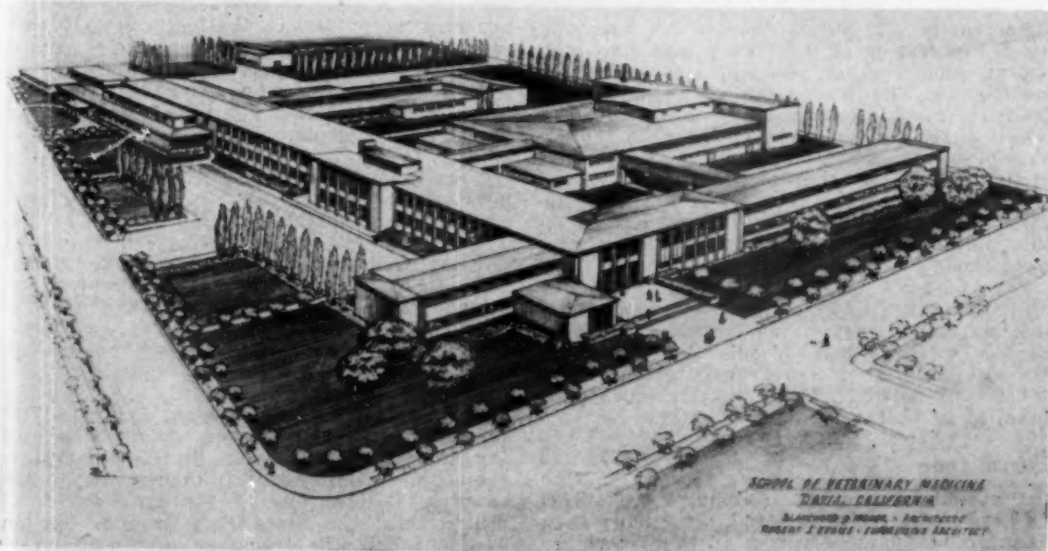
consultant to the State Department of Health since 1928. He served in World War I, attaining the rank of captain; during World War II, he was civilian consultant to the War Manpower Commission in the procurement of veterinary officers.



—Kee Coleman.

Dr. C. M. Haring

In addition to membership in the AVMA, which he served as secretary in 1915-16, Dean Haring is a fellow in the American Association for the Advancement of Science and a member of the Society of American Bacteriologists; he also is a member of the professional fraternities Sigma Xi, Alpha Zeta, Delta Omega, and Phi Zeta.



Architect's sketch of the school of veterinary medicine to be built on the Davis campus. Preliminary plans for the building provide space both for teaching and research.

Southern Association Auxiliary.—The ladies auxiliary of the Southern California Veterinary Medical Association held a box social dinner and dance at Plummer Park in Hollywood, March 7, 1947. Held in the true spirit of the old-time party, with decorated lunch boxes and gingham and jeans, the occasion raised \$400 for the AVMA Research Fund.

S/A. M. SCOTT, *Secretary*.

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Meat Inspection Report.—Continuing the upward trend apparent for the past several years, slaughter in California in 1946 broke all records, with 7,320,476 animals slaughtered in plants operating under federal, state, or approved municipal meat inspection. This represents an increase of 8 per cent over 1945 and more than a 36 per cent increase over ten years ago. Slaughter in state-inspected plants increased approximately 50 per cent over 1945. Seven plants returned to state inspection from temporary federal inspection, five new plants opened, and one plant requesting inspection had to be refused because of the serious shortage of veterinary meat inspectors.

Reported violations of the meat law, considerably under those of 1945, practically ceased with the termination of OPA meat controls in October. Convictions amounted to 17; fines collected, \$1,575; fines suspended, \$500; and prison sentences suspended, sixty days.

• • •

Champion Butterfat Producer.—Silken Lady Ruby of F 919141, a 16-year-old registered Jersey owned by J. W. Coppini of California, is the lifetime butterfat-producing champion of the United States, over all breeds, according to *Hoard's Dairyman*. On official production test, verified by the American Jersey Cattle Club, Ruby has amassed a lifetime total of 155,988 lb. of milk and 8,550 lb. of butterfat.

• • •

Personals.—Dr. Stuart Peoples has been appointed professor of veterinary medicine and pharmacologist in the new school of veterinary medicine at the University of California at Davis. Since his graduation from the medical school of the University in 1934, he has taught physiology and pharmacology at the University of Louisville, University of Alabama, and Baylor University, Waco, Texas. A specialist in anesthetics, Dr. Peoples will have charge of the comparative pharmacology division of the new school.

Dr. Andrew J. Creely (SAN FRAN '15), son of the late Dr. Edward J. Creely, founder of the San Francisco Veterinary College, has purchased Dr. Howard W. Wood's Blue Cross Dog and Cat Hospital in San Francisco. Dr. Wood (TEX '40) is building and entering into mixed practice in Indio, Coachella Valley.

Canal Zone

Personal.—Col. H. S. Eakins, V.C. (COLO '11), retired on Jan. 31, 1947, after more than twenty-nine years of service in the Veterinary Corps. His address is Box 92, Ancon, Canal Zone.

District of Columbia

Association Meeting.—The District of Columbia Veterinary Medical Association held a meeting on May 6 in the Hamilton Hotel, Washington. Dr. Mason Weadon reported on the American Animal Hospital Association meeting held in Tulsa, Okla., in April. The program ended with a short round-table discussion on canine and feline diseases.

The officers for the coming year are: Dr. George Stewart, *president*; Dr. Barney Smith, *vice-president*; and Dr. Moss Parsons, *secretary-treasurer*.

S/M. PARSONS, *Secretary*.

Georgia

Problems of Expansion Program.—The University of Georgia has received over 200 inquiries from individuals in 33 states, the District of Columbia, Hawaii, and the Virgin Islands, concerning the course in veterinary medicine at the University. However, the National Research Council's committee on the training of veterinarians has reported that the establishment of a veterinary college at present prices would require an expense of \$2 million, and an annual appropriation of \$200,000.

A minimum of ten additional faculty members are needed for instruction in the second year work. Positions are open in the following departments: veterinary anatomy, one instructor; veterinary pathology, one professor, one associate or assistant professor, and one technical assistant; veterinary physiology and pharmacology, one professor, one associate professor, and one instructor; and veterinary hygiene, one professor and one associate or assistant professor.

S/J. M. SUTTON, *Secretary*.

Illinois

Central Association.—The Central Illinois Veterinary Medical Association met in Springfield on March 27 for a dinner session, with their wives. The speakers on the evening program were: Dr. C. C. Hastings, Williams-ville, who spoke on practical aspects of animal nutrition; and Dr. C. D. Van Houweling, Illinois Agricultural Association, who described his work in the veterinary medical relations department of that association.

• • •

Lake County Meeting.—The county's brucellosis control program was discussed at a farmers' meeting at Grayslake on March 20. Dr. T. P. Gallahue, Lake County veterinarian, and Mr. Ray Nicholas, farm advisor of Lake County, were cochairman of the meeting which was attended by several assemblymen and many of the leading farmers of the county. Representing the Bureau of Animal Industry were Dr. N. H. Howlett and Dr. T. K. Jones.

• • •

Springfield, Horse Training Center.—With the increasing popularity of harness-horse racing comes the realization that Springfield is about the busiest horse-training center in the country. Besides one of the greatest of all mile tracks, the State Fair grounds has an excellent half-mile track, an all-weather half-mile cinder track, new stables, and all-around training facilities of the first rank.

Dr. Ivy Speaks at Chicago Association.—Professor Andrew C. Ivy, University of Illinois, College of Medicine, spoke at the May meeting of the Chicago Veterinary Medical Association on "The Nazi S.S. Medical Experiments." Professor Ivy, at the behest of President Truman, made a personal investigation of the indictments against German physicians. It was not a pleasant report.

The annual funfest of the Chicago Veterinary Medical Association which customarily replaces the regular monthly meeting prior to the summer vacation will be held on the night of June 12, Secretary Glover announces. Dr. C. L. Miller of Oak Park, celebrated generalissimo of these glamorous events, is in command.

s/ROBERT C. GLOVER, *Secretary*.

Northern Association.—On March 26, the Northern Illinois Veterinary Medical Association met at the Faust Hotel, Rockford. The program consisted of the following speakers.

Dr. L. M. Hutchings, Purdue University, Lafayette, Ind.: "Swine Brucellosis."

Dr. C. F. Clark, state veterinarian, East Lansing, Mich.: "Bovine Infertility."

Dr. Dwight Smith, Iowa State College, Ames: "The Operation of the Perineal Hernia," and "ANTU Poisoning in Canines."

Dr. N. H. Howlett, inspector in charge, BAI, Springfield, spoke on the programs being carried on in Illinois at present.

s/A. G. MISENER, *Secretary*.

Pigs Die of Unidentified Disease.—In certain parts of Illinois, pigs from 3 days to 2 weeks of age have been dying of an unidentified disease characterized by vomiting, loss of appetite, and fetid diarrhea. These symptoms also have been observed in a number of sows, but only a few died. University of Illinois veterinarians who are investigating the trouble have tried various treatments without success.

Mastitis Control Program Successful.—Dairymen who are cooperating in the Illinois mastitis control program "have nothing but praise for the results shown in their herds," report veterinarians of the University of Illinois, who are supervising the project.

Personal.—Dr. John M. Livingstone (ONT '37) has purchased the Woodlawn Animal Hospital, 6312 Kimbark Ave., Chicago. During the war, Dr. Livingstone (major) served in the Army as port veterinarian, 16th Port, T. C.

Louisiana

New Research Organization.—The Animal Research Workers in the southern states met on March 20-21 in the Regional Animal Disease Research Laboratory at Auburn, Ala. The purpose of the meeting, planned and organized by Dr. A. H. Groth, director of the Regional Animal Disease Research Laboratory, was to discuss research work in animal diseases, which is being carried on in the southern states.

The following subjects were discussed: anaplasmosis and internal parasites (panel discussions), infectious keratitis, photosensitiza-

tion, and Newcastle disease (avian pneumoencephalitis). In addition, Dr. Gibbons of Alabama Polytechnic Institute talked on X disease.

Representatives attended from Virginia, North Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Oklahoma, and Texas. Two states in the area, South Carolina and Arkansas, were not represented. Others attending were: Dr. Jacob Traum, University of California; Mr. H. W. Marston, Office of Research Administration, Washington, D. C.; Dr. C. G. Grey, Office of Experiment Stations, Washington, D. C.; and Dr. H. W. Schoening, Dr. H. W. Johnson, and Mr. Robert R. Henley, Bureau of Animal Industry, Washington, D. C.

Those in attendance decided to form an organization, the purpose of which would be to serve more or less as a clearing house and coordinating body for research activities in the area.

Officers elected were: Dr. C. D. Grinnells, North Carolina State College, *president*; Dr. A. H. Groth, director, Regional Laboratory at Auburn, *vice-president*; Dr. W. T. Oglesby, Louisiana State University, *secretary*; Drs. F. E. Hull, University of Kentucky, and J. C. Grimes, Alabama Polytechnic Institute, *directors*. It will be the responsibility of the Board of Directors to plan for the future activities of the organization. Committees were appointed to prepare projects to be supported by funds which may be provided under the Flanagan-Hope bill.

s/W. T. OGLESBY, *Secretary*.

Massachusetts

Massachusetts Association.—The May 15 meeting of the Massachusetts Veterinary Association was held at the Paige Laboratory in Amherst. Dr. R. C. Klussendorf, *assistant executive secretary*, AVMA, and associate editor of the JOURNAL, discussed "Reproductive Diseases of Dairy Cattle." Dr. H. G. Hodges, supervising veterinarian of the mastitis control program, Ithaca, N. Y., spoke on "The New Mastitis Control Program in New York State." A general discussion followed the program. Members were invited to visit the new mastitis laboratory in Stockbridge Hall on the Amherst campus.

Michigan

Western Association.—The Western Michigan Veterinary Medical Association met on April 17 in the Marion Hotel, Grand Rapids. Following the dinner, the host, Dr. Max Colton, introduced J. A. Lown, M.D., Coopersville, who discussed undulant fever as it occurs among his patients in that area. Dr. R. A. Runnells, Department of Anatomy, Michigan State College, East Lansing, reported on the progress of the research fund in Michigan. Forty-eight veterinarians and their wives attended the meeting.

s/FRANK THORP, JR.

Minnesota

Botulism Destroys Mink Herd.—Botulism recently caused a loss of \$75,000 on the Hercules Fur Farm, owned by J. S. Chastek of Glencoe, reports the *American Fur Breeder*.

Unfamiliarity with the malady and delay in diagnosis and treatment resulted in 435 deaths in a herd of 500 breeders. Foxes on the ranch also were affected, but all were saved by prompt treatment.

Missouri

Kansas City Association.—Metritis in large and small animals was the theme of discussion for the April 15 meeting of the Kansas City Veterinary Medical Association at the Hotel Continental. Dr. W. F. Erwin, Tulsa, Okla., dealt with the subject in small animal practice; Dr. E. F. Ebert, Kansas City, spoke on the condition in horses; and Dr. W. W. Wempe discussed metritis in cows.

s/GAIL B. SMITH, *Secretary*.

Nebraska

Largest Cattle Population.—Cherry County of this state is the nation's leading cattle country, the 1945 census of agriculture shows. As of Jan. 1, 1945, it had 237,888 cattle and calves. Runner-up was Elko County in Nevada with 181,608.

New Jersey

Passano Foundation Award.—Dr. Selman A. Waksman, discoverer of streptomycin and microbiologist at the New Jersey Agricultural Experiment Station, New Brunswick, has been selected as the 1947 recipient of the Passano Foundation Award of \$5,000. Presentation of the award to Dr. Waksman, for his original research culminating in the discovery of streptomycin, will be made at a dinner to be attended by about 100 outstanding medical men at the Ritz-Carlton Hotel, Atlantic City, on June 12. The foundation was established in 1943 by the Williams & Wilkins Co., medical publishers, to encourage medical research, especially that which has clinical applications.

New Mexico

Preparedness Program.—In an address to the New Mexico Cattle Growers Association, Albuquerque, March 11, 1947, Mr. T. E. Wilson of Wilson & Co. outlined a six-point preparedness program as follows: Keep business safe and sound; eliminate waste, especially from animal diseases and parasites; promote more research on a sound and constructive basis; modernize methods by applying the "know how" of the two preceding items; improve quality for better markets; and promote products to inform the consumer what is available.

s/H. E. KINGMAN, JR.

New York

Faculty Changes at Cornell.—Dr. Malcom E. Miller of the anatomy department, and Dr. Donald W. Baker, parasitology department, have been promoted from associate to full professors. Dr. Jack McCann, who has worked with UNRRA since his graduation in 1946, has replaced Dr. Richard B. Fish and is working with Dr. Seth Johnson on mastitis control and research. Dr. Robert Rost is assistant in the Small Animal Clinic and replaces Dr. Robert Field who will establish a private practice.

Dr. Charles Rickard, assistant professor in

the pathology department, has accepted the position as editor of the *Cornell Veterinarian*. Dr. P. P. Levine of the same department has held this post for the past five years.

The Admissions Committee reports that at present there are nearly 500 applications for admission to the Veterinary College; the quota for that college is 49 men.—*Veterinary News*, March-April, 1947.

Fellowships for Five Cornellians.—Among 122 holders of the Guggenheim Memorial fellowships for 1947 are five Cornell professors. Dr. P. P. Levine, one of the five, presently professor of poultry diseases in the Veterinary College, will carry on investigations of the nature and mechanism of immunity in coccidial infections of domestic fowl in the Biological Institute at Sao Paulo, Brazil.

New York City Association.—The May 7 meeting of the Veterinary Medical Association of New York City, held at the Hotel Pennsylvania, featured a "clinical-pathological conference." Veterinarians leading the conference were Drs. Frank Bloom, Mark L. Morris, and J. Stuart Crawford. A mimeographed copy of a case report was enclosed with the announcement of the meeting, and members were asked to arrive at a tentative diagnosis and to be prepared to participate in the discussion at the close of the meeting.

s/C. R. SCHROEDER, *Secretary*.

Ohio

Veterinarian for Experimental Animals.—Dr. Richard D. Larcey (OSU '46) will take charge of the Animal Hospital at the School of Medicine, Western Reserve University, Cleveland. Dr. Larcey, with Dr. Joseph T. Wearn, dean of the School of Medicine, is working on plans to improve the hospital and to insure the most humane treatment possible for the animals, including comfortable quarters, scientific feeding, prevention and treatment of diseases and parasites, and healing of injuries. The four-story brick building on the Western Reserve campus will be the central pool of all animals used in the various departments of the School of Medicine. It houses dogs, cats, monkeys, guinea pigs, rabbits, mice, rats, and chickens.

Dr. Larcey pointed out that animal experimentation such as that done at Western Reserve University has contributed greatly to the alleviation and prevention of illness among vast numbers of pets and other animals as well as human beings.

Imposter At Large.—Veterinarians in the Dayton area are warned to be on the lookout for a Mr. O. Henson who uses the nickname "Bob." This man has worked as a kennel helper in several veterinary hospitals and is reported to be unreliable and untrustworthy in a petty way. Recently, he left a position with a Chicago veterinarian and carried away an instrument kit, vaccines, syringes, and drugs. Some of the misappropriated instruments and drugs were recovered when the man was apprehended in Dayton. He is about 25, blond, and conspicuous because he is a diabetic.

Oregon

Personal.—Dr. C. S. Haynes (WASH '34), Helena, Mont., has been appointed Oregon state veterinarian to fill a newly created post in the animal husbandry division of the state's Department of Agriculture. Dr. Haynes, who has served the Montana Livestock Sanitary Board as deputy state veterinarian, will work with M. E. Knickerbocker, chief of the division of animal husbandry.

Association Meeting.—The April 26 meeting of the Oregon State Veterinary Medical Association was held in Bend. Dr. Charles F. Haynes, newly appointed state veterinarian, was introduced to the Association. Several papers were presented in the morning session, and the afternoon session consisted of field demonstrations and discussion of artificial insemination. Plans were made for the meeting of the Pacific Northwest Veterinary Medical Association to be held in Portland, July 7-9, 1947.

s/WALTER W. WELLER, *Secretary*.

Pennsylvania

Keystone Association.—The Keystone Veterinary Medical Association met at the University of Pennsylvania Veterinary School on April 25. Dr. Robert Ticehurst of Red Bank, N. J., spoke on "Green Vaccine in Relation to Canine Distemper." A motion picture on Newcastle disease (pneumoencephalitis) was shown.

s/R. C. SNYDER, *Secretary*.

Bucks-Montgomery Association.—The Bucks-Montgomery Veterinary Medical Association held its May 14 meeting at the Moose Home in Doylestown. Dr. Mark Allam and Dr. E. A. Churchill of the School of Veterinary Medicine, University of Pennsylvania, Philadelphia, discussed large and small animal surgery. Motion pictures were shown.

s/J. G. SHUTE, *Secretary*.

Quebec

Province of Quebec Authorizes New School of Veterinary Medicine.—Recent legislation approved by the Legislative Assembly of Quebec provides for the establishment and maintenance of a new veterinary school to be located at Saint-Hyacinth. It will be entirely a provincial school under the supervision of the Minister of Agriculture; its director is to be chosen from the members of the College of Veterinary Surgeons of the province and appointed by the Lieutenant Governor.

The course of study will cover four years; candidates for admission will undergo preliminary examinations fixed by the provincial College of Veterinary Surgeons. The school at Oka, which has been operated by the Trappist Fathers for a number of years, will be closed as soon as the new one is completed; the Fathers will not be connected with the latter's operation. Funds to the extent of \$600,000 have been approved for the erection and furnishing of the necessary buildings at Saint-Hyacinth; subsequent expenses of maintenance

and operation are to be provided for by annual appropriations to be made by the legislature.

s/JOSEPH DUFRESNE
Resident Provincial Secretary.

Texas

Research Foundation Established.—As a result of a valuable gift by Mr. Tom B. Slick, oil magnate and ranchman, including 3,000 acres of fertile land eight miles west of San Antonio, there have been established the Foundation of Applied Research and the Institute of Industrial Research with headquarters in San Antonio. These enterprises have been staffed by a Board of Trustees headed by Dr. Gregory Pincus, formerly of the Worcester Foundation for Experimental Biology, Worcester, Mass. Mr. Slick is an alumnus of Yale University and himself a successful inventor.

s/RAY NEUMANN.

Junior AVMA.—The Junior chapter of the AVMA in the School of Veterinary Medicine, Texas A. & M. College, College Station, held a meeting on March 11 in the veterinary hospital. Dr. H. T. Cartrite of Canyon spoke on the "Do's and Don't's of Veterinary Practice." Over 100 members of the veterinary school attended the program.

Houston Association.—Dr. H. V. Cardona of Fort Worth was the speaker at the March 6 meeting of the Houston Veterinary Medical Association, which was held in the Livestock Exchange Building, Port City Stockyards.

Personal.—Dr. Drue Ward (TEX '39) is now associated in practice with Dr. I. B. Nye in Fort Worth.

Washington

Veterinarians Discuss Cattle Diseases.—Dr. H. A. Tripeer, Walla Walla, Pierce County supervisor of dairy and livestock, announced a new program for control of brucellosis in the state of Washington at a meeting of farmers in Pierce early in April. The plan, described as the "People's Program" in *Western Dairy Journal* (April 8), is based on three principles: (1) find the infection; (2) prevent spread of infection; and (3) get rid of infection. Where reactors are found, the case is handled on its individual merits with regard for welfare of the owner.

Dr. R. W. Dougherty, specialist in obstetrics and a member of the Washington State College veterinary department, illustrated his talk on breeding problems with a display and analysis of the reproductive organs of a cow.

Dr. Norman Garlick, Tacoma, and Dr. H. F. Beardmore of the State Department of Agriculture assisted with the program on common cattle diseases.

s/CARL SCHNEIDER, *Secretary*.

Animal Husbandry Department Moves.—The Department of Animal Husbandry of Washington State College, Pullman, has been moved from Wilson Hall on the campus into the veterinary building. The move allows more space for many members of the teaching staff in the department.

Wisconsin

Wisconsin Association Urges Veterinary School.—Regents of the University of Wisconsin have promised to establish a veterinary school at the University "when the necessary funds are available for that purpose."

Since Wisconsin limits the number of non-resident students, retaliation from near-by states with veterinary schools has brought about the necessity for state action. The Wisconsin Veterinary Medical Association also requested that the legislature appropriate funds to pay veterinary schools out of the state for instruction of Wisconsin veterinary students until state facilities are available.

Northeastern Association.—The spring meeting of the Northeastern Wisconsin Veterinary Medical Association was held in Green Bay on April 23. Speakers for the day were Dr. B. A. Beach, Madison; Dr. Albert T. Klackner, Indianapolis, Ind.; and Dr. C. E. Hammerberg, New London. A dinner and entertainment at the Beaumont Hotel for members and their wives closed the meeting.

S/WILLIAM MADSON, *Secretary*.

FOREIGN

Australia

The Pay-Off for the Shortage of Veterinarians.—An amendment of the Veterinary Surgeons Act, "to allow men with practical experience to undertake veterinary work until such time as trained veterinary surgeons are available," was recommended by the Advisory Board of Agriculture in December. The Hon. Minister of Agriculture was advised that the Board was sympathetic to this request.—*J. Dept. Agric. of South Australia*.

[At the Illinois Veterinary Conference in 1930, the late Dean Brumley warned: "Unless the number of veterinarians can be maintained, the livestock industry is bound to suffer. It will permit other agencies to flourish which will be a decided blow to professional activities, and turn the pages of history back a number of years."—*Editor*.]

Mice "Blitz" Farmlands.—An army of mice is swarming over 4,000 square miles of farmland in the Mallee district of northwest Victoria, according to the *Western Livestock Journal* (Apr. 22, 1947). Although farmers are killing thousands every night, the invaders are getting a seemingly endless supply of replacements from protected breeding nests under grapevines. They are devouring everything edible in their paths and are even biting people while asleep in their homes.

England

Livestock Rations Increased.—In an attempt to step up livestock production, the government increased the ration allowances for swine, poultry, and breeding rabbits effective May 1. Temporarily, the allowances for other species remain at levels fixed last summer. Although

feeds are still scarce, larger supplies are in prospect.

Few Vacancies in British Veterinary Schools.—Because of the difficulty in obtaining admission to accredited veterinary colleges in the United States and Canada on account of the large number of applicants in recent years, a number of prospective matriculants in veterinary medicine have sought admission to schools in the British Isles. A recent letter from Mr. W. G. R. Oates, *secretary* and *registrar* of the Royal College of Veterinary Surgeons, London, states that the situation there is almost identical to that in America: many more applicants than available places. Moreover, 90 per cent of all vacancies at present are reserved for ex-service men, leaving only 10 per cent entry for young civilians. The position is further complicated by the fact that the British veterinary schools have always been international centers, with applicants coming from all over Europe and from Africa, Asia, and Australasia. Consequently, applicants from the United States will have little more chance of acceptance than they have at home.

India

Assam's Plight.—Quoting from the local press, the *Indian Veterinary Journal* (Jan., 1947) is able to point forthright to the people's plight brought about by "the paucity of trained veterinary personnel, inadequate pay and prospects for even the few existing personnel." Heavy mortality of cattle from preventable contagions, nonavailability of biological products, and other factors are among the major vital defects to be corrected in the "Government's administration of the veterinary services." Reforms have been proposed by the present administration, among them the founding of a veterinary college in Assam.

COMING MEETINGS

American Society for the Study of Sterility. Hotel Strand, Atlantic City, N. J., June 7-8, 1947. John O. Haman, M.D., 490 Post St., San Rafael, Calif., *secretary*.

Missouri Veterinary Medical Association. Hotel Missouri, Jefferson City, Mo., June 9-10, 1947. J. L. Wells, 1817 Holmes St., Kansas City 8, Mo., *secretary*.

North Dakota Veterinary Medical Association. Dakotah Hotel, Grand Fork, N. Dak., June 9-10, 1947. F. M. Bolin, 1503 S. 6th St., Fargo, N. Dak., *secretary*.

Oklahoma Veterinary Medical Association. Oklahoma A. & M. College, Stillwater, Okla., June 9-10, 1947. D. B. Pellette, 505 Leonhardt Bldg., Oklahoma City 2, Okla., *secretary-treasurer*.

Ohio State University. Annual Conference for Veterinarians. College of Veterinary Medicine, Ohio State University, Columbus, June 11-12-13, 1947. Walter R. Krill, College of Veterinary Medicine, *dean*.

Wisconsin Veterinary Medical Association. Hotel Northern, Chippewa Falls, Wis., June

- 19-21, 1947. B. A. Beach, Genetics Bldg., University of Wisconsin, Madison 6, Wis., secretary.
- California State Veterinary Medical Association. San Diego, Calif., June 23-25, 1947. Mr. Charles Travers, Room 208, 3004 16th St., San Francisco, Calif., executive secretary.
- Michigan State Veterinary Medical Association. Olds Hotel, Lansing, Mich., June 24-25, 1947. B. J. Killham, School of Veterinary Medicine, Michigan State College, East Lansing, Mich., secretary.
- North Carolina State Veterinary Medical Association in conjunction with the South Carolina Association of Veterinarians. Hotel Charlotte, Charlotte, N. Car., June 25-26, 1947. J. H. Brown, Tarboro, N. Car., secretary-treasurer.
- Utah Veterinary Medical Association. Veterinary Bldg., Utah State Agricultural College, Logan, Utah, June 27-28, 1947. O. E. Larson, 641 E. 7th St. N., Logan, Utah, secretary.
- Idaho Veterinary Medical Association. Owyhee Hotel, Boise, Idaho, June 30 and July 1, 1947. Arthur P. Schneider, Dept. of Agriculture, Boise, Idaho, secretary.
- Pacific Northwest Veterinary Medical Association. Portland, Ore., July 7-9, 1947. Walter W. Weller, P. O. Box 485, Ashland, Ore., secretary.
- Montana Veterinary Medical Association. Northern Hotel, Billings, Mont., July 10-11, 1947. E. A. Tunnick, Montana Agricultural Experiment Station, Bozeman, Mont., secretary-treasurer.
- American Veterinary Medical Association. Eighty-fourth Annual Session, Netherland Plaza Hotel, Cincinnati, Ohio, Aug. 18-21, 1947. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.
- Purdue University. Annual Short Course for Veterinarians, Purdue University, Lafayette, Ind., Oct. 1-3, 1947. C. R. Donham, Dept. of Veterinary Science, Purdue University, head.
- Eastern Iowa Veterinary Association, Inc. Hotel Montrose, Cedar Rapids, Iowa, Oct. 14-15, 1947. Laurence P. Scott, P. O. Box 325, Waterloo, Iowa, secretary.
- Pennsylvania State Veterinary Medical Association. Harrisburg, Pa., Oct. 15-17, 1947. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.
- Southern Veterinary Medical Association. Roosevelt Hotel, New Orleans, La., Nov. 17-19, 1947. A. A. Husman, 320 Agricultural Bldg., Raleigh, N. Car., secretary.
- Chicago Veterinary Medical Association. Palmer House, Chicago, Ill., the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.
- Keystone Veterinary Medical Association. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.
- Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. E. A. Woelfer, c/o A. P. Hood & Sons, Boston, Mass., secretary-treasurer.
- New York City Veterinary Medical Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
- Saint Louis District Meetings. Roosevelt Hotel, St. Louis, Mo., the first Friday of February, April, June and November. U. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.
- Houston Veterinary Medical Association. Houston, Tex., the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

STATE BOARD EXAMINATIONS

Florida—The Florida State Board of Veterinary Examiners will hold an examination on June 23-25, 1947, at the Hotel Mayflower, Jacksonville, Fla. Address inquiries to Dr. H. C. Nichols, secretary of the board, Box 405, Ocala, Fla.

Illinois—The Veterinary Examining Committee of the Illinois Department of Registration and Education will hold examinations on July 1-3, 1947, at 160 N. LaSalle St., Chicago, Ill. Applications should be filed with Mr. Philip M. Harman, Department of Registration and Education, Springfield, Ill. For other information also address Mr. Harman.

Iowa—The Iowa Veterinary Medical Examining Board will hold examinations for licensing on June 16-17, 1947. Applicants are asked to be in the office of the Division of Animal Industry, State House, Des Moines, not later than 8:00 a. m., on June 16. Address inquiries to Dr. C. C. Franks, chief, Division of Animal Industry, State House, Des Moines 19, Iowa.

Massachusetts—The Massachusetts Board of Registration in Veterinary Medicine will hold examinations for registration in this state on June 12-14, 1947, at Amherst, Mass. The latest date for filing applications is May 29, 1947. Address inquiries to Dr. B. S. Killian, secretary, Board of Registration in Veterinary Medicine, Room 413-N, State House, Boston 33, Mass.

New Hampshire—The New Hampshire State Board of Veterinary Examiners will hold an examination on July 2, 1947, at the State House, Concord, N. H., at 10:00 a. m. Address inquiries to Dr. H. T. Paul, secretary of the board, Portsmouth, N. H.

Oklahoma—The Oklahoma State Board of Veterinary Medical Examiners will hold an examination on June 11-12, 1947, at Stillwater, Okla. Address inquiries to Dr. N. L. Astle, secretary-treasurer of the board, 715 W. Lincoln, Blackwell, Okla.

Utah—The Utah Veterinary Medical Examining Board will hold an examination on June 16-17, 1947, Room 326, State Capitol Bldg., Salt Lake City, Utah. Application blanks may be obtained from Mrs. Rena B. Loomis, Dept. of Registration, State Capitol Bldg. Address inquiries to Dr. W. H. Hendricks, chairman of the board, 1419 E. 17th S., Salt Lake City, Utah.

VETERINARY MILITARY SERVICE

New Surgeon General of the Army

On Apr. 23, 1947, President Truman nominated Brigadier General Raymond W. Bliss to be The Surgeon General with rank of Major General, succeeding Major General Norman T. Kirk, effective June 1, 1947, at which time General Kirk retired.

A native of Massachusetts, General Bliss received his medical degree from Tufts Medical College in 1910. After entering the Medical



Major General Raymond W. Bliss

Corps, he attended the Army Medical School, graduating in 1913; he also received a post-graduate degree in surgery from Harvard Medical School in 1921. Subsequent to World War I, General Bliss served as chief of surgery at Sternberg General Hospital, Manila, P. I., at Fort Sam Houston, and at William Beaumont General Hospital, El Paso. He was made surgeon of the First Army and Eastern Defense Command in 1942; in 1943, he was assigned to the Surgeon General's Office as chief of operations and Assistant Surgeon General. He was appointed Deputy Surgeon General on Jan. 1, 1946, in which capacity he served until his recent promotion.

During World War II, General Bliss made extensive trips to the Pacific Area and after the war was an observer at the Bikini atom bomb test. He recently returned from a two-month inspection trip to the European and Mediterranean theatres. He was awarded the honorary degree of doctor of science by Tufts College in 1943, and is also the recipient of the Distinguished Service Medal, the French Legion of Honor, and the Award of the Italian Crown.

DEATHS

Richard C. Chatman, Chicago, Ill., died Feb. 8, 1947, in the Cook County Hospital, Chicago.

Dr. Chatman was one of the oldest veterinarians in the employment of the U. S. stockyards and had made a fine record during his twenty-nine years of service as veterinary inspector and three years with the U. S. Immigration Service.

R. S. Heer (CVC '90), 89, Platteville, Wis., died April 14, 1947, from a heart attack while digging a ditch on his farm. He had practiced in Platteville for fifty-six years, claiming the longest service of any veterinarian in the state. In addition to his fine record of service to the farming area of southwestern Wisconsin, Dr. Heer had been mayor of his town for two terms, an original promoter of the Platteville Fair Association, and a director of the Mound City Bank from its beginning.

William H. Lytle (ISC '02), Salem, Ore., died April 15, 1947, following a long illness. Dr. Lytle was a former chief of the division of animal industry of the Oregon Department of Agriculture and was active in organizing the Oregon State Veterinary Medical Association. At one time, he had been featured on the cover of the *Oregon Farmer* as the outstanding veterinarian of that area.

Francis M. Marquis (SAN FRAN '14), Lathrop, Calif., died Nov. 21, 1946. Dr. Marquis had been a member of the AVMA since 1915.

W. L. Northcutt (IND '07), 72, Liberty, Texas, died April 11, 1947. Born in Indiana, Dr. Northcutt had practiced in that state until establishing residence in Texas twenty-four years ago. He had practiced in a number of locations while in Texas.

Hartwell Robbins (KVCV '06), 64, Jackson, Miss., died in New Orleans, La., April 18, 1947. Dr. Robbins entered the U. S. BAI in Chicago, Ill., following his graduation. He was transferred to Mississippi in 1926 in charge of all Bureau activities in the state, and under his direction the final work of tick eradication was accomplished.

Edward F. Sanford (AMER '98), Glen Cove, L. I., N. Y., died Feb. 22, 1947, at Waterbury, Conn. Dr. Sanford had been in practice for thirty years and was active until his retirement eight months ago. He had belonged to the AVMA since 1899.

A. J. Tuxill (NYCVS '94), 78, Auburn, N. Y., died Feb. 19, 1947, following an illness of three weeks. He had been in practice for fifty-three years. Dr. Tuxill was active in his state associations and joined the AVMA in 1903.

Marnie E. Wesner (TH '12), 58, Walnut, Ill., died July 15, 1946. Dr. Wesner was a member of the Illinois and the Eastern Illinois associations and was admitted to the AVMA in 1922.

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The following deaths were reported during the compilation of the 1947 AVMA Directory now in press.

George A. Allen (MCK '18), June, 1943.

L. Kenneth Green (UP '94), Jan. 1, 1945.

Tasker P. Polk (USCVS '10), April 5, 1945.

*Indicates member of the AVMA.

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Evac	1-10 cc vial	5.70
Erase	10-1 cc vials	6.00

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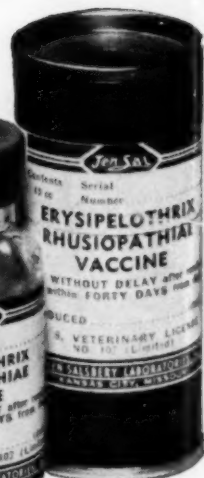
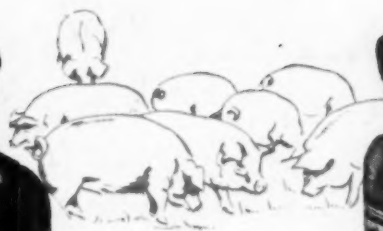
Bivade	2-2 cc vials	2.10
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Vial 15 cc.: Code ERSEP 2.00

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